



Dutch contributions to the FAR conference in Arcachon

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Between 18 and 22 May of this year, the third edition of the FAR conference (Flight Vehicles, Aerothermodynamics and Re-Entry Mission Engineering) was held in the picturesque town of Arcachon, on the Atlantic coast near Bordeaux. This ESA-organised conference focuses on research and developments related to high-speed flight through the atmosphere.

The Netherlands was well represented at the FAR conference, with participants from TU Delft, TNO, Aerospace Propulsion Products (APP) and HDES / Solidflow. In addition, there were Dutch nationals working for foreign companies, such as CFS Engineering in Switzerland, represented by Jan Vos, and our own editor Lars Pepermans, who works for the Swedish Space Corporation (SSC). With so much Dutch involvement, and no fewer than two *Ruimtevaart* editors present, the conference was an excellent opportunity to take a closer look at the activities of Dutch companies, universities and institutes in this field.

[General overview of the conference](#)

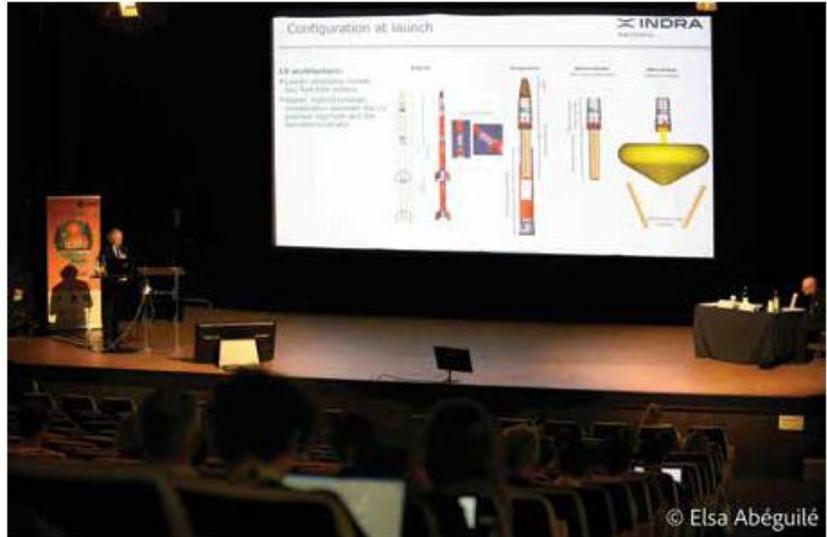
The 2025 edition of FAR followed in the footsteps of the first two editions, held in Monopoli (Italy) and Heilbron (Germany) respectively. The Conference Palace, located on the boulevard in Arcachon, offered a beautiful view over the beach. As a result, participants often continued exchanging experiences and knowledge outside, in front of the venue. FAR is known for bringing together a mix of scientists, policymakers and engineers to discuss the Entry, Descent and Landing (EDL) sector in the broadest sense. Each of the four conference days started with a keynote lecture, followed by parallel sessions on various topics. During the breaks between sessions, there was ample opportunity for further discussion. One of the main

conclusions of the conference was that Europe is currently making a significant effort to catch up in the field of Entry, Descent and Landing. Until a few years ago, much of the available expertise was still based on knowledge dating back to the “space race” era, and Europe lagged considerably behind in this area. Now, with recent developments – including geopolitical shifts – and new scientific insights, it has become clear that much more research is needed to close this gap.

[Dutch participants and their activities](#)

Four Dutch organisations presented papers at the FAR 2025 conference: TU Delft, TNO, Aerospace Propulsion Products (APP) and HDES / Solidflow. In addition, several other Netherlands-related organisations and engineers contributed to the technical programme.





Left: 3D-printed model of a new re-entry capsule developed for Arianespace SAS. By using the heat shield as a structural component, they hope to reduce the mass. [Photo: Lars Pepermans]

Right: The special session on the ICARUS project started with an overview presentation by project coordinator Giuseppe Guidotti from Deimos Engineering. [Photo: Elsa Abéguilé]

TU Delft has a strong focus on planetary research, including the study of planetary landers. This research involves, among other things, calculations and simulations of the motion of a vehicle's centre of mass, as well as motions *around* that centre of mass for various vehicles, such as landers. At FAR, Sowndariya Dhiyaneeswaran presented her graduation thesis, in which she simulated the motion of the parachute of a Titan lander with six degrees of freedom. For this work, she used TU Delft's TUDAT simulation tool library. The research provided valuable insights into the behaviour of the parachute and the lander suspended beneath it. NO does not work directly on spacecraft or planetary landers, but it develops technologies that can be used in such systems. For many years, TNO has been working on cold-gas generators for inflatable structures, such as landing airbags and inflatable heat shields. At the conference, Sem

de Maag presented the development of a hydrogen cold-gas generator intended for inflatable heat shields. In this project, TNO collaborates with American companies and with NASA. Because hydrogen gas is very light, the generator can deliver a large gas volume from a compact device. For the ExoMars mission, APP developed a parachute mortar – based on its igniter technology – that ejects the parachutes out of the lander so that they do not end up in the turbulent wake behind the vehicle. At FAR, Rudi Matijssen and Ashwyn Groot from APP presented a test setup in which the parachute mortar, including the parachute itself, can be tested. The results and video footage of these tests were also shown.

HDES / Solidflow develops and produces various types of cold-gas generators for inflatable structures in space, as well as for other spaceflight applications.

The company is involved in the European ICARUS project, which is developing an inflatable heat shield scheduled to fly in 2028.

In the paper presented by HDES / Solidflow, Sigurd Ravnan reported on the progress in the development of the cold-gas generators for ICARUS. The company is developing a large cold-gas generator with a capacity of 250 normal litres (1 litre of gas at 1 bar and room temperature), nicknamed "El Gordo", and a smaller 20-normal-litre generator, nicknamed "El Flaco". Both generators produce CO₂ gas and will fly on the ICARUS mission in 2028. In addition to these Dutch organisations, several Netherlands-related entities were present. For example, Jan Vos – who lives and works in Switzerland but studied in Delft – presented several papers on CFD (Computational Fluid Dynamics) analyses of different advanced and reusable launch vehicles.



Left: Sigurd Ravnan from HDES / Solidflow explains the cold-gas generators used to inflate the ICARUS inflatable heat shield. [Photo: Berry Sanders]

Right: Jan Vos (CFS Engineering), Sigurd Ravnan (HDES / Solidflow) and other French and Swiss participants during the official conference dinner at Tir au Vol in Arcachon. [Photo: Berry Sanders]

Internationally as well, the Netherlands contributed to the programme through various engineers of Dutch origin or trained in the Netherlands, who now work abroad and presented their work at FAR.

Conclusion

Although the Netherlands does not (yet) have re-entry missions of its own to its name, the country has become an important player in several niche areas. Not only on the simulation and mission-planning side, as with TU Delft, but also on the

hardware side of missions, Dutch organisations such as APP and HDES make valuable contributions. APP has established a strong reputation in the field of parachute mortars for ExoMars and Space Rider, while HDES / Solidflow has acquired a leading position in inflation systems for space inflatable structures through its participation in ICARUS, SWIFT and other projects. Now that this sector has recently received a new impulse, it is crucial that the Netherlands remains actively involved. The FAR conference

underscored this once again and opened the door to new collaborations between Dutch industry, knowledge institutes and the rest of Europe.



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Below: Participants of the FAR 2025 conference on the beach in front of the conference centre. [Photo: Elsa Abéguilé]