

Survey by microplanes

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MAVinci plane.

Smart and quick land surveys by unmanned microplanes are now offered by the German company MAVinci, an alumnus of ESA Business Incubation Centre Darmstadt.

Guided completely by satnav and following predefined routes, the company's automatic micro air-vehicles (UAVs), with their 1.6 m wingspan and less than 3 kg take-off weight, take precise aerial photos that used to require conventional piloted aircraft.

"Our UAVs are cost-efficient, available at short notice and easy to use for surveillance of development areas, construction sites, mining areas, [disaster zones](#) and waste disposal sites, just to mention a few," said Johanna Claussen, MAVinci CEO.

"They can carry visual cameras or other customer-specific [measuring equipment](#)."

With the support from the ESA business incubation centre, the MAVinci entrepreneurs developed their small air-vehicles and turned their idea into a growing business.

ESA engineers provided expertise on exploiting satnav data, and the Agency's optical lab at ESTEC in the Netherlands helped with calibrating the camera.



Mining site survey.

Before taking off, the whole [flight plan](#) is defined and uploaded to the plane. From take-off to landing the flight is controlled by the autopilot, although it is followed via radio by a 'safety pilot' on the ground who can take over the controls at any time. Satnav follows the flight plan and triggers the camera to take images of the target areas.

In 2009, while still under incubation at the ESA centre, the company was called upon to take surveys in Spain. Erosion is a severe problem for land use and water supply in wide areas of southern Europe and northern Africa.

One of MAVinci's micro-aircraft imaged several of the many erosion canyons in Andalusia to improve understanding of the dynamics of erosion and to help local farmers.

"The market for land surveys by MAVs is growing very rapidly, especially this year," said Johanna.



MAVinci microplane-based surveys can provide 3D elevation models from their data. Credit: MAVinci UG

With distributors now in 12 countries, she admitted, "We can't even make as many systems as our customers would like to buy."

Through its Technology Transfer Programme, ESA has eight Business Incubation Centres in six countries to help start-up companies and entrepreneurs to realise their ideas to use space technology and space-provided services to develop European businesses.

More than 200 new companies have already been launched, and another 75 are supported each year at the centres.

Provided by European Space Agency

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