

# UAS Conducts Survey at 4,300m above Sea Level



Edáfica, a Chilean environmental consulting company which owns an sUAS Stardust II, was hired by Collahuasi mining company to conduct a survey of biophysics and ecotypes. The aim of the survey was to explain the conservation status of the species *Frankenia triandra* growing in Salar de Coposa under governmental protection.

In order to obtain detailed information of this plant community, a flight mission was carried out in a salt pan environment at the highlands of Chile. There were no images before the flight mission due to the plant's small size (pads 30 to 50cm on average), making the plants invisible to commercial satellites available on the market today. Moreover, the sector is a risky area for manned operations, so the opportunity to perform flyovers is almost null.

This species has a cushion growth habit, in that each cushion is actually a population (a group of plants of the same species). The images furnished by the flight mission will provide valuable information for conducting detailed and precise soil surveys, and identifying the relationship behind the distribution of the cushions, because there is evidence that plants are affected by wind and water erosion, wildlife and flood areas.

The operation consisted of two UAV flights, over a gross area of 550ha. From the process, two kinds of images were obtained: infrared images to develop the vegetation index SAVI, and RGB images to obtain a digital surface model (DSM). The DSM is used to generate runoff models and relate this to the characterisation of water movement in the soil through the hydrogeology. The advantage of this technic lies in the UAV pixel size, which is just 15cm for both types of pictures, much higher than that delivered by commercial standard cost satellites.

All the information generated will be subsequently integrated into a GIS which will help to improve the understanding and conservation of the rare *Frankenia triandra*, growing at the Coposa salar.

The system is also working in many 3D mapping projects for the mining industry. The key factor here is the ability to fly really high and obtain high-quality results at the same time.

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