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AN INNOVATIVE APPROACH TO CUBESATS DISPERSION: THE D-ORBIT ION CUBESAT
CARRIER**Abstract**

The increasing number of nanosatellites (especially cubesats) being launched in these years is a reality that is now evident. This phenomenon reflects the fact that those small satellites, usually weighting a few kg, with limited power and computational capabilities, are being increasingly used by commercial entities for conducting their businesses. Nanosatellites are more effective for commercial uses when they are operated in large constellations. A large number of companies, often New Space startups, are already launching large constellations of satellites, and there are numerous announcements for large networks of cubesats with more than 100 elements. Although several launch vehicles dedicated to small and nanosatellites are in development, thus able to fulfil the specific need of this niche, so far cubesats have been launched as ride-share payloads of larger satellites, therefore unable to satisfy their needs in terms of deployment, for instance. When cubesats belonging to the same constellation are deployed at the same time by a launch vehicle, these take a long time to disperse along the orbital plane, causing a not optimal performance of the constellation itself, and a longer time-to-service. D-Orbit from Italy has recently introduced on the market a free-flying cubesat deployer, able to accommodate up to 48 cubesat units of any form factor up to 12U. In this paper, it will be shown how a smart deployment procedure carried out through the D-Orbit free-flying cubesat deployer, can help reducing up to 80% the dispersion time along the orbital plane, allowing better performance of the whole constellation, and a better coverage of the Earth within less time after the deployment.