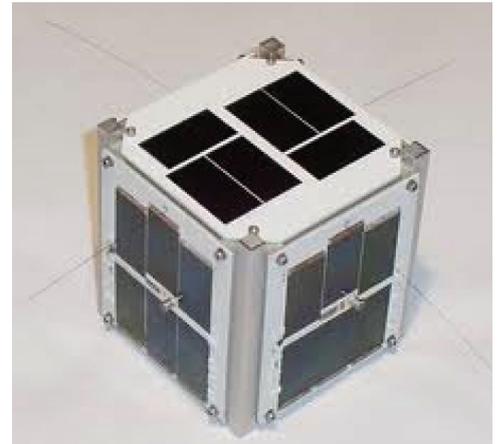


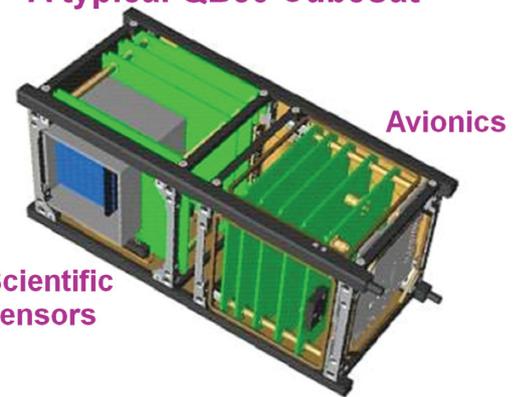
QB50: THE FIRST NETWORK OF CUBESATS



QB50 is a project aiming at the launch of the first network of CubeSats in orbit, initiated by VKI. QB50 has the scientific objective to study in situ the temporal and spatial variations of a number of key constituents and parameters in the lower thermosphere (90-320 km) with a network of 50 double CubeSats, separated by a few hundred kilometres and carrying identical sensors. QB50 CubeSats will also perform key in-orbit technology demonstrations and study the re-entry process by measuring a number of key parameters during re-entry and by comparing predicted and actual CubeSat trajectories and orbital lifetimes.

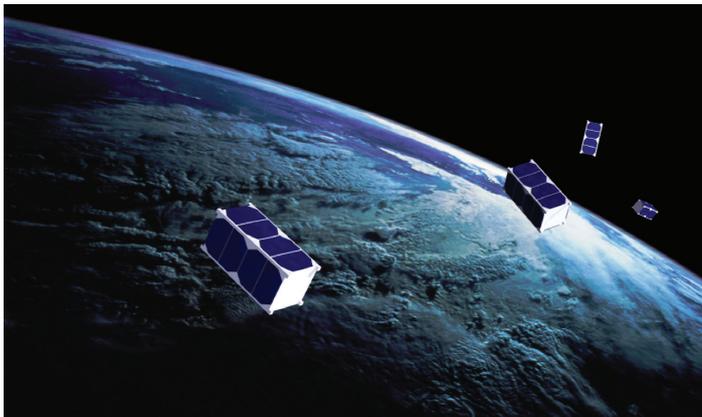


A typical QB50 CubeSat



CUBESATS

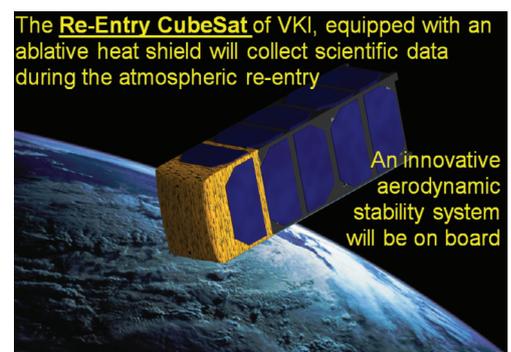
A CubeSat is a miniaturised satellite (10x10x10 cm, weighing 1 kg) which offers all the standard functions of a normal satellite (attitude determination and control, uplink and downlink telecommunications, power subsystem including a battery and body-mounted solar panels, on-board data handling and storage by a CPU, plus either a technology package or a small sensor or camera). They can even have deployable solar panels, antennas or booms.



50 Double CubeSats in Orbit

NETWORK OF CUBESATS IN THE LOWER THERMOSPHERE

A single CubeSat is simply too small to also carry sensors for significant scientific research. However, when combining a large number of CubeSats with identical sensors into a network, in addition to the educational value, fundamental scientific questions can be addressed which are inaccessible otherwise. Networks of CubeSats have been under discussion in the CubeSat community for several years, but so far no university, institution or space agency has taken the initiative to set up and coordinate such a powerful network.



VKI's CubeSat to perform an atmospheric re-entry



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