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The ICE-CUBE Experiment on ISS

The experiment ICE-cube - Investigating Cold adapted organisms as model organisms for a Europa ocean environment in Cubesat based hardware was propsed and selected for the ILSRA 2014 call. The aim is to test the hypothesis that selected extremophile microorganisms survive and multiply in a periodically cold, salty, liquid environment, even when exposed to extra-terrestrial UV and ionizing radiation. Secimen of the three Domains of life will be investigated in a still to be developed Cubesat H/W: Archaea, e.g. *Halorubrum lacusprofundi*, bacteria, e.g. *Planococcus halocryophilus* from the Canadian high arctic and the eukaryotic yeast *Rhodotorula* sp. isolated from Antarctic dry valleys. The space mission will simulate the environment just below the surface of the Jupiter moon Europa, which is discussed to be one of the few habitable places in our solar system. The moon´s surface is too hostile to expect any life, but the ocean beneath its water ice surface kept liquid by a high salt concentration and heat from tidal forces imposed on the moon from its giant planet may provide an environment able to support life similar to that in Earth´s deep oceans.

The experiment idea and suggested space mission set up will be presented.