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Abstract

The WISDOM (Water Ice Subsurface Deposits Observations on Mars) Ground Penetrating Radar has been selected to be part of the ExoMars 2018 exobiological rover mission. A prototype has been tested during the Mars Simulation organized by the Austrian Space Forum in Alpine ice caves in Dachstein, Austria. This campaign provided the opportunity to validate methods developed to process WISDOM's data in a well-documented environment and to retrieve geometrical and quantitative information about the 3D structure and the electromagnetic properties of the subsurface. We estimate the ice thickness in different locations inside the ice caves, and show that this ice is formed of fine strata with different properties. Data analysis allows reconstructing the bedrock in a 3D environment where a complete survey was performed.

Keywords

ExoMars, WISDOM, GPR, subsurface, ice caves, permittivity