MARINE-TARGET IMPACT CRATERS ON MARS?

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About one tenth of the known craters on Earth have formed in shallow epicontinental seas. They differ in morphology and lithology from craters formed on land. This study shows that some of the typical features of marine-target craters on Earth can be recognised at a number of impact craters on Mars. In comparisons with Mars, at the moment only the morphological features can be used although lithological evidence, such as resurge sediments, is needed to verify a marine target. The features that can be recognised with remote sensing are a concentric shape with low or absent, rim wall, as well as radial gullies that resemble those excavated by the resurge of water. For this to apply, a relation is postulated between water depth and size of impact. At shallower water depths the morphological and lithological similarities to land-target craters increase. However, the water may influence the ejecta to adopt a fluid behaviour. The presence of marine-target craters on Mars supports the ideas of extensive oceans proposed by several authors, and may aid interpretations on target water depths.