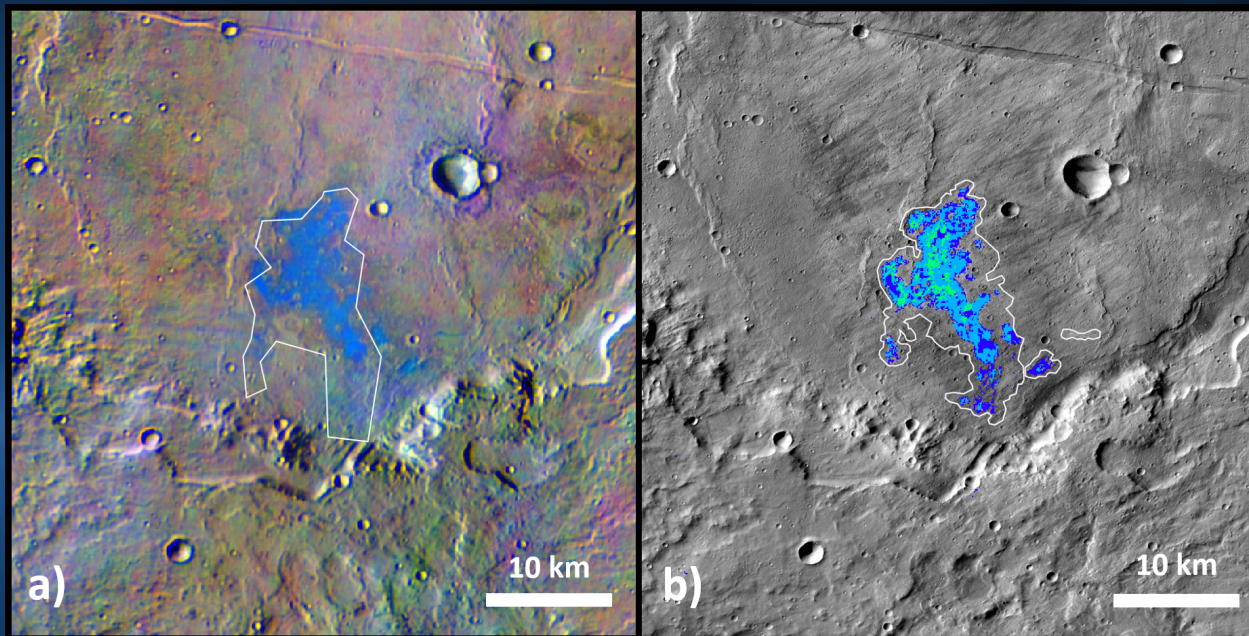


# Chloride Salts and the History of Water on Mars

A key question in Martian science is understanding where and when water existed on the surface. Chloride salts (including common table salt) are a class of minerals that form in the presence of water. The Mars Odyssey orbiter was the first to map the geologic context of chloride deposits around the globe in 2010 (*below left*).



Example of previous chloride mapping (a) from Osterloo et al. (2010, *JGR Planets*) versus new, more accurate chloride mapping (b).

Hill and Christensen, 2019, 9<sup>th</sup> International Mars Conf., manuscript in prep.

An improved “chloride index” from Mars Odyssey’s THEMIS instrument team has enabled the discovery of 704 new chloride deposits (*above right*). This greatly expanded database has allowed the team to determine that chloride formation stops abruptly near the dramatic climate transition at the end of the Noachian period, signaling an end of globally wet conditions at that time.