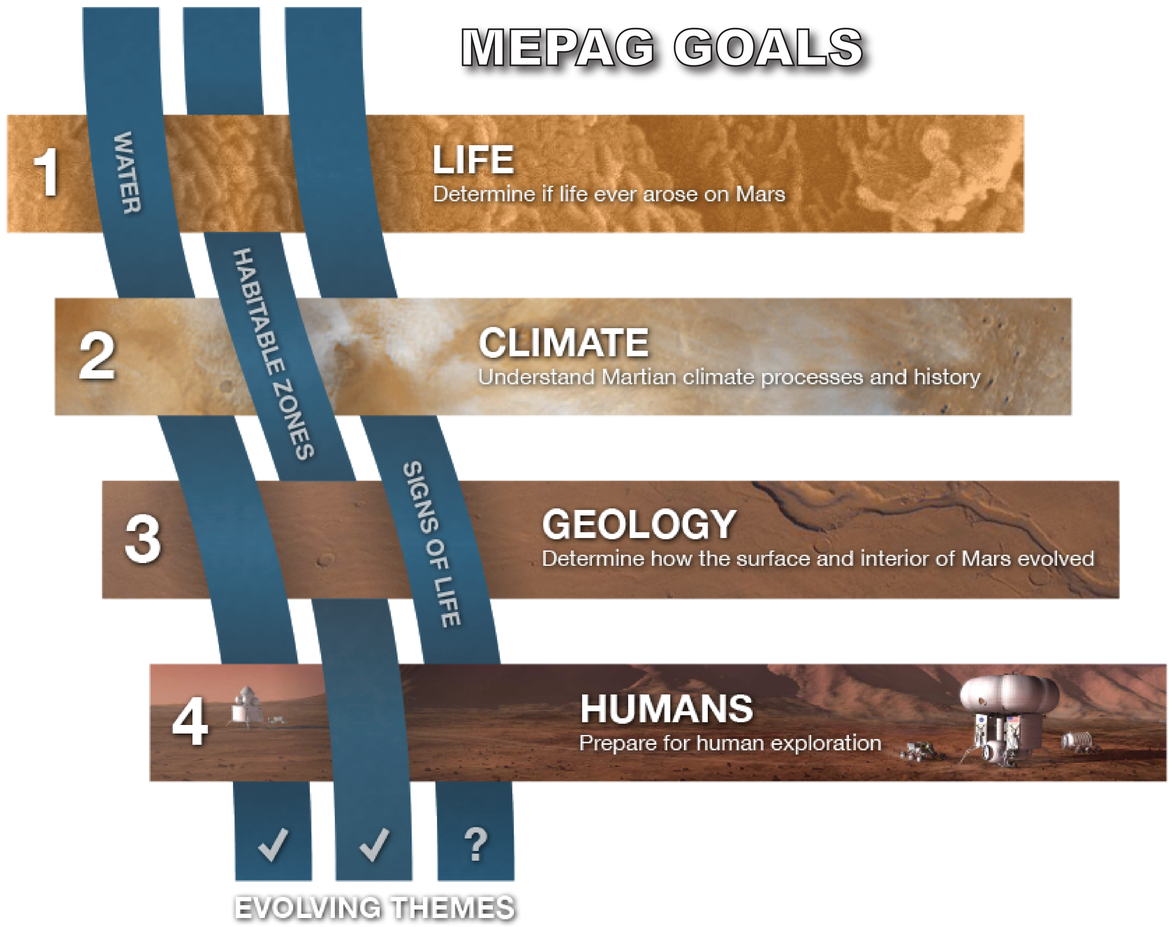
Mars Exploration Program Analysis Group (MEPAG)

INTRODUCTION: This selection of recent Mars system science discoveries is intended as an update to the 2012-era list of 10 discoveries presented on the MEPAG website. The new list is intended to be a useful reference for 1) outlining the current state of knowledge, 2) framing scientific hypotheses, 3) contributing content to proposals, briefings or research projects, and/or 4) improving educational presentations. Readers are advised to consult the posted reference materials for the best introduction to each topic.

The topics are not prioritized or intended to be exhaustive. We envision the maintenance of this site as an ongoing process, and welcome suggestions for additional subjects to expand upon those seen here. Please send your suggestions to: mepagmeetingqs@jpl.nasa.gov. These topics will be reviewed by the MEPAG Executive and Goals Committees.



Click on the lines below to open individual summaries.

Corresponding Science Goal

Ancient, Habitable Mars

(1) Ancient habitable environments preserved in the rock record
(3) First in-situ rock and surface exposure age dating on another planet
(2) Compelling quantitative evidence that much of the ancient Mars atmosphere has been lost to space

Ice Ages and Climate Change in More Recent Geologic Times

(2,3,4) CO_2 ice buried in South Polar Cap could double present atmospheric mass
(2) Shallow ice extent further exposed by recent meteor impacts.

Dynamic Processes on Modern Mars

(2,3,4) Extensive surface changes triggered by seasonal CO_2 frost
(2,3,4) Seasonal snowfall on Mars
(2,3) Dust storm pathways and temporal patterns of regional dust storms
(1,2,3) Recurring Slope Lineae: Evidence of liquid water on Mars today?
(1,2,3) Variable methane detections in Gale crater

Click here to download a copy of the MEPAG Goals Document.