New Support for Hypotheses of an Ancient Ocean on Mars

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Comparison of Giant Polygons in the Martian Lowlands to Subsea Polygons on Earth

Giant Polygons - Mars

- Common in the lowlands (A-D). Absent from highlands
- Widespread (A); ~0.75 - 8 km across
- Within predicted fine-grained facies (Acidalia)
- Most below elevation of ~4000 m (Acidalia)
- Can be associated with mounds interpreted as mud volcanoes (B-C)

Giant Subsea Polygons - Earth

- In 50+ offshore basins (A-C)
- Widespread (A); ~0.5 - 4 km across
- Passive margins. Fine-grained sediments
- From sediment dewatering & compaction
- Polygon size decreases with burial (E)
- Can be associated with mud volcanoes (D)

Implications: Giant polygones on Mars may be a signature of an ancient ocean

(Oehler & Allen, 2012. Astrobiology)