

# The Fourth National Mars Science Seminar

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## *Forced ripples on Mars*

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Ripples, sand ridges formed by wind perpendicular to their crests, are the most common bedforms on Mars. Ripples were previously classified in terms of their composition into two categories: fine-grained and coarse-grained ripples. We have found that this classification is insufficient, and ripples need to be divided also in terms of their apparent formation environment into free ripples and forced ripples, as these two types of bedforms evolve differently and are characterized by different properties. Forced ripples are created by non-free flow, i.e., fluid flow instabilities related to topographic obstacles, and are always larger and often of more complex structure than nearby free ripples formed by free flow (fluid flow not influenced by topography). In this study, a developed classification of ripples is presented and the formation and evolution of fields of forced ripples is discussed.

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