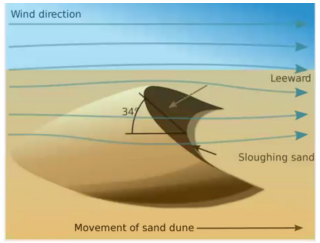
Dunes classification

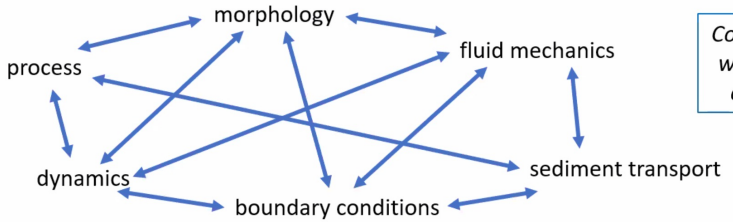
Motivation

- Our understanding of dunes has evolved over the past several decades, introducing significant new complexity



Textbook classifications are overly simplistic

- Previous methods of classifying dunes do not capture the full range of processes, boundary conditions, and fluid dynamics now used in research



Complex relationships not well-captured by current classification schemes

Classification designed to answer three questions

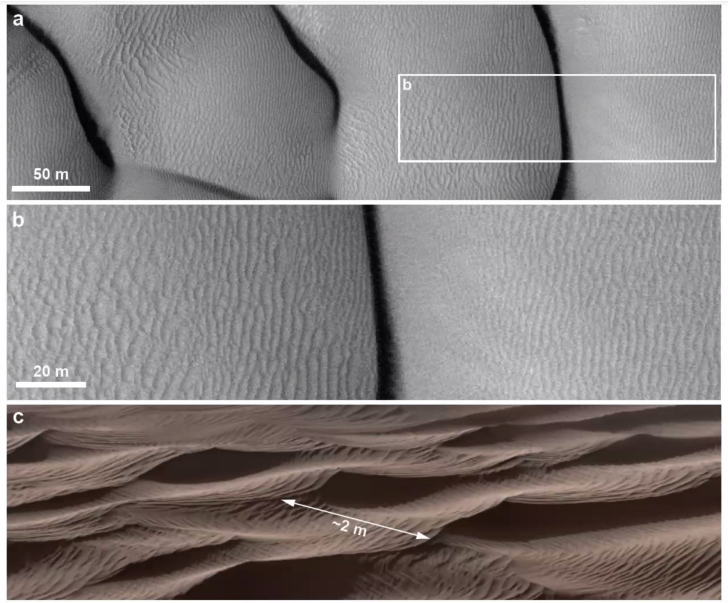
Morphology 1) What is the association between dune **shape** and dune **type?**

Process 2) How is dune type controlled by **boundary conditions**?

Fluid Mechanics 3) What **range of sizes** can dunes develop in a given **flow regime?**

Dunes discovered on other planets highlight the need for a comprehensive classification framework

Widely applicable classification enables comparison and future insight



Complementary classifications of aeolian dunes based on morphology, dynamics, and fluid mechanics

Courrech et al, invited to Earth and Science Reviews