

# **Facies Models in the Geologic Record**

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Sedimentary rocks serve as a repository for the layered history of the Earth's past environments. To decipher this record, geologists utilize a concept called facies, which describes distinct units within a sequence of rocks based on their physical, chemical, or biological characteristics. Facies analysis helps geologists reconstruct how, when, and where rock layers are formed. When systematically organized, facies patterns form facies models that represent idealized depositional frameworks for specific environments, such as deltas, reefs, and deep-marine settings. These models are developed through the synthesis of detailed lithologic, paleontologic, and stratigraphic data and serve multiple roles: as reference standards, interpretive frameworks, predictive tools, and educational resources. Facies models guide geologists in predicting which rocks and features might be found in unexplored areas and help in comparing outcrops from different regions.

As geologic research expands into increasingly diverse environments, facies models remain vital for recognizing patterns, testing hypotheses, and sharing geological knowledge across disciplines. This presentation explores the foundational principles behind facies and facies models, with illustrative examples from both terrestrial and planetary contexts.