

Major kinematic revolutions: the underside of the maps

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Earth's surface features, on land and at the ocean floor, are intimately related to the dynamics of the Earth's interior. Large-scale topographic features, such as seafloor spreading ridges, plateaus, volcanic eruptions, mountain ranges, cratonic basins, pediments, and alluvial/fluviol/deltaic/slope/deep systems are the product of numerous parameters interacting in various ways: tectonic history, lithosphere and mantle segmentation, vertical and lateral crustal movements, mantle convection, heat fluxes, lithospheric composition, the presence of fluids, and even the core's dynamo. Subsidence and isostatic rebound, uplift, climatic variation, and fluid escape are profoundly connected to the processes of erosion, sedimentary mass transfer, and ultimately, deposition and storage of material in deep basins. These processes are at the heart of the sedimentary cycle, and at the same time are responsible for generating sedimentary archives of Earth's past geodynamic and climatic activity and landform evolution.

Despite the profound influence of these parameters on Earth's surface features and the societies that inhabit them, the complex nature of their interactions has left critical gaps in their understanding.

We propose here a kinematic reading grid of some events that may give a new view of these interactions.

Mots-Clés : Plate tectonic, Kinematic phases, mantle2mud