Ashur university collage

Dept. of Biology

First-year

General geology

Lab. 4

Assist. Lecturer. Al-Hassan Talib

Metamorphic Rocks

Metamorphism (a word from Latin and Greek that means literally “changing of form”) refers to changes to rocks that take place in Earth’s interior. The changes may be new textures, new mineral assemblages, or both. Transformations occur in the solid state (meaning the rock does not melt). The new rock is a metamorphic rock.

Metamorphic rocks are rocks that have been transformed from their original state by high pressure, temperature, or chemical activity without melting. This process is called metamorphism, and it can occur deep underground or at the Earth's surface.

FACTORS CONTROLLING THE CHARACTERISTICS OF METAMORPHIC ROCKS:

Temperature: Heat, necessary for metamorphic reactions, comes primarily from the outward flow of geothermal energy from Earth’s deep interior.

Pressure: mean confining pressure; that is, pressure applied equally on all surfaces of a substance as a result of burial or submergence.

Time: Most metamorphic rocks are composed predominantly of silicate minerals, and silicate compounds are notorious for their sluggish chemical reaction rates.

There are three types of metamorphism: **contact, regional, and dynamic.**

Contact metamorphism occurs when rocks are exposed to high temperatures from contact with molten rock. Regional metamorphism occurs over a large area and is typically associated with mountain-building processes. Dynamic metamorphism occurs along fault lines where rocks are subjected to high pressure and shearing forces.

Metamorphic rocks can provide important information about the history and geology of the Earth's crust, and they are often used in construction and decorative applications due to their durability and attractive appearance.



Hornfels



marble



Schist



Slate