

UNCONFORMITY

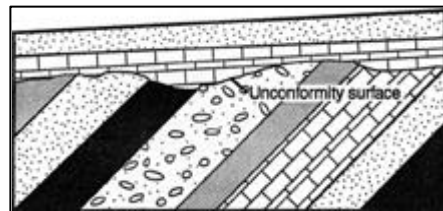
An **unconformity** is a contact between two rock units in which the upper unit is usually much younger than the lower unit. Unconformities are typically buried erosional surfaces that can represent a break in the geologic record of hundreds of millions of years or more. For example, the contact between a 400-million-year-old sandstone that was deposited by a rising sea on a weathered bedrock surface that is 600 million years old is an unconformity that represents a **time hiatus** of 200 million years. The sediment and/or rock that was deposited directly on the bedrock during that 200-million-year span was eroded away, leaving the "basement" surface exposed. The unconformities are special because they are surfaces that represent intervals of time during which either there was no deposition, or there was erosional removal of the entire rock record for the interval of time represented by unconformity or both. Unconformities are also called as surfaces of erosion or non deposition, usually the former. The beds directly above the unconformity commonly contains a basal conglomerate normally composed of clasts of the rocks directly beneath the unconformity.

In short the formation of unconformity involves following steps:

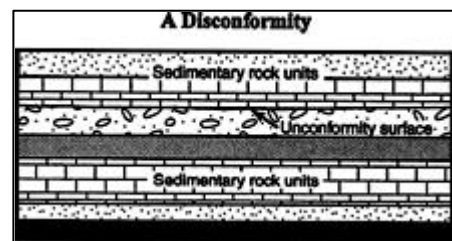
- 1) Deposition of older beds
- 2) Uplift and erosion of older beds
- 3) Deposition of younger beds

There are three kinds of unconformities: disconformities, nonconformities, and angular unconformities.

Angular unconformity - An **angular unconformity** is the contact that separates a younger, gently dipping rock unit from older underlying rocks that are tilted or deformed layered rock. The contact is easily identifiable because the rock units are not parallel and at first appear cross-cutting. Angular unconformities generally represent a longer time hiatus than do disconformities because the underlying rock had usually been metamorphosed, uplifted, and eroded before the upper rock unit was deposited.



Disconformity – Disconformities is usually a erosional contacts that are parallel to the bedding planes of the upper and lower rock units. Since disconformities are hard to recognize in a layered sedimentary rock sequence, they are often discovered when the fossils in the upper and lower rock units are studied. A gap in the fossil record indicates a gap in the depositional record, and the length of time the disconformity represents can be calculated. Disconformities are usually a result of erosion but can occasionally represent periods of nondeposition.



Nonconformity - A **nonconformity** is the contact that separates a younger sedimentary rock unit from an igneous intrusive rock or metamorphic rock unit. A nonconformity suggests that a period of long-term uplift, weathering, and erosion occurred to expose the older, deeper rock at the surface before it was finally buried by the younger rocks above it. A nonconformity is the old erosional surface on the underlying rock.

