

New way to capture atmospheric carbon dioxide

Researchers from Lawrence Livermore National Laboratory, the United States, have revealed a new way for removing carbon dioxide (CO₂) from power plants and storing it in the ocean. The new technique places the greenhouse gas into the ocean in a manner that will have smaller environmental and ecological impacts. Under the carbonate dissolution process, CO₂ in a power plant's flue gas emission stream would be hydrated to produce a carbonic acid solution. This solution would then be mixed with limestone, converting it into bicarbonate, before ultimate ocean injection. According to scientists, this process, known as carbonate weathering, occurs naturally though at a much slower pace.

Researchers point out that about 80 per cent of the CO₂ released into the atmosphere eventually ends up in the ocean. A carbon sequestration process that captures CO₂ and injects it directly into the ocean may have an adverse impact on local marine life as it leads to variations in the ocean's pH. However, if CO₂ is reacted with crushed limestone and sea water and the resulting solution released into the ocean, the limestone would buffer the pH of the ocean and prevent it from becoming more acidic. Also, the dissolved limestone would tend to keep the CO₂ in the ocean and out of the atmosphere. This process occurs naturally, but on about a 6,000-year time scale.