

Ch'ing-shui Cliffs, Tarokok National Park, Taiwan

Source: Journal of Coastal Research, 40(2)

Published By: Coastal Education and Research Foundation

URL: <https://doi.org/10.2112/0749-0208-40.2.i>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.



www.JCRonline.org

COVER PHOTOGRAPH



www.cerf-jcr.org



Ch'ing-shui Cliffs, Tarokok National Park, Taiwan. The formation of these steep cliffs was caused by orogenic movement, with the Philippine Plate and the Eurasian Plate forming a fault line. The outcropping above sea level is composed of metamorphosed limestone marble, gneiss, and green schist, and is classified as a metamorphic complex area of Dananao on the geological map. Because there are very few coastal cliffs in the world that exhibit such a great elevation drop, the natural landscape of “high cliff valley” makes Ch'ing-shui Cliff a rare coastal cliff landform. It is also the highest coastal cliff in Taiwan. This section of the coast is continually beaten and eroded by the sea water of the Pacific Ocean, and the present rock walls are subject to extreme natural forces, such as earthquakes and typhoons. The beaches below are full of different sizes of marble stones, from giant boulders to small grains of sand.

The pictured cliff system runs adjacent to the famous “Marble Gorge” in Tarokok National Park and features one of the most rugged rocky shores in Taiwan. Marble formations only reveal themselves after millions of years of erosion and continued uplifting, while remains of calcium carbonate accumulated some 230 million years ago. These deposits through time, pressure, and the elements were gradually lithified into the limestone that in turn metamorphosed into marble. As Taiwan was uplifted from the pressures of the colliding plates, the erosive forces of weathering and water worked to carve out the gorges seen today. Erosion by the Liwu River against the constantly elevating land combined with the heavy sub-tropical rains resulted in a rapid transformation of the landscape. Marble, which is relatively hard and resistant to erosion, nevertheless relented to these forces resulting in unusually steep cliffs and narrow canyons. (Photograph taken November 2023 by Markes Johnson, Professor Emeritus, Geosciences Department, Williams College, Williamstown, Massachusetts, USA.)