

## Luminescence Dating of Ancient Agricultural Terraced Landscapes: Prospects for Heritage Protection

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**Abstract :** Agricultural terraced landscapes are widespread in mountainous areas in a variety of climatic zones around the World. The most famous are those found associated with the famous Inca site of Machu Pichu in the Andes, the arid lands in upland areas of Yemen, and the abundant rice terraces covering the hilltops in tropical areas such as Thailand, Vietnam, and China and also Bali. Terraces were designed using advanced engineered techniques, requiring specialist knowledge of bedrock geology, soil cultivation and maintenance, and ecosystem management to grow a variety of crops in specific environmental conditions. These enigmatic landscapes were often overlooked in the past but have now received widespread attention to further understand their age, origins, and evolution as the landscapes and environment changed over time. By understanding the age and chronologies of agricultural terrace technology, we can enhance our understanding of these unique features considered widely as important ecosystem services in the present day. We present distinct luminescence dating evidence from a variety of terraced systems found in different European environmental settings, such as the UK, Italy and Belgium, as part of the wider ERC-funded TerrACE Project. Our research aims to better understand their history and advocate for their protection and effective management as important cultural, heritage and environmental assets, creating new avenues for future scientific research.

**Keywords :** terraces, agriculture, luminescence dating, heritage protection

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