



Short communication

A taxonomy of vernacular architecture An addendum to “Ancient vernacular architecture: Characteristics categorization and energy performance evaluation” (Zhai and Previtali, 2010)



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ABSTRACT

The paper is an addendum to the paper entitled “Ancient vernacular architecture: characteristics categorization and energy” that was published at “Energy and Buildings” in 2010 [1]. This addendum provides an explicit list of 114 codes representing vernacular architectural regions across the whole globe defined by climate, culture and continent. Codes are intended to support work in analyzing and memorializing vernacular building characteristics that otherwise may be lost. This addendum will be an important and useful resource for analyzing and studying vernacular architecture.

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1. Introduction

Shaped by a similar adaptive process as biological evolution, vernacular architecture holds intrinsic qualities to support heating, cooling and the use of natural materials that in many cases have enabled ancient cultures to live in ways that are less energy and resource intensive than modern societies. There is value in identifying, documenting and categorizing vernacular techniques for the sake of archiving this knowledge built up over centuries and potentially applying these techniques to today's structures.

Zhai and Previtali [1] presented the overall approach to categorizing distinct vernacular regions, and evaluating energy performance of ancient vernacular technologies and homes through systematic building energy simulations. The simulation results reveal that integrating traditions (both materials and techniques) found in ancient vernacular architecture as a measure to improve building energy performance is a worthwhile endeavor and a scientific guidance can help enhance the performance. The study also indicates that, since many vernacular dwells exist in the world, it is challenging (but desired) to package vernacular architecture traditions and quantitative design knowledge to modern building designers. In-depth analysis of vernacular architectures in a particular location is thus necessary to provide location and culture specific design solutions.

The taxonomy documented here, in a great detail, provides a methodology and system to categorize distinct vernacular regions and what is believed by the author is a global, comprehensive list that will assist the mentioned performance analysis, evaluation and optimization.

2. Categorizing vernacular regions

Since vernacular traditions are shaped strongly by culture, weather and geographic location, this taxonomy classifies the world into distinct vernacular architecture regions each with a unique combination of these three traits. It is important to note that GPS mapping boundaries have not been created for the taxonomy and are not recommended so as to allow for flexibility in categorizing structures on boundaries or in islands of climate or climate within larger vernacular architectural regions.

2.1. Mapping climate zones

Köppen (1846–1940) developed a classification system that is generally accepted as the most accurate method of mapping world climates. It includes 14 zones separated by temperature and humidity. However, the Köppen climate zone map was found to be considerably complex for the purpose of this taxonomy and a simplified map based on the Köppen Climate Classification System developed by Richard de Dear at Macquarie University in Australia was chosen [2] (Fig. 1).

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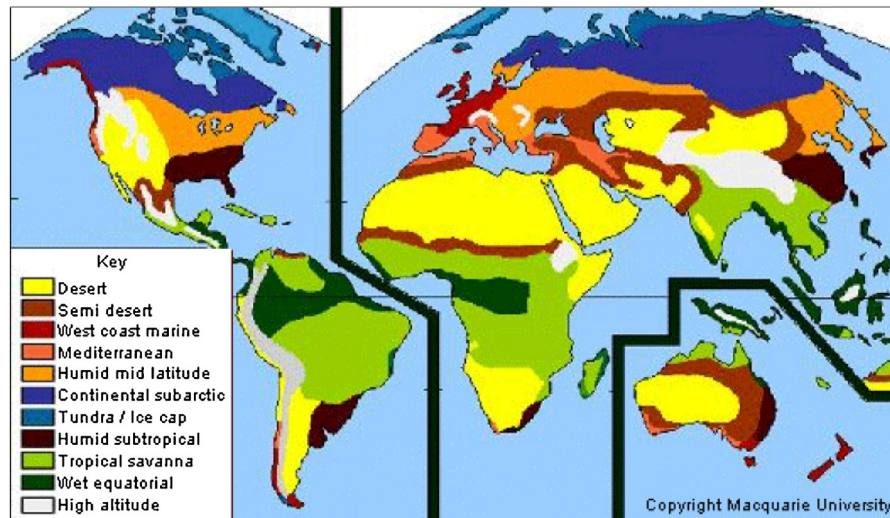


Fig. 1. A simplified mapping of world climates [2].

2.2. Mapping cultural heritage

Given the migration of peoples and the temporal nature of national borders, the question arises of how to map cultural heritage. A relatively accurate method generally accepted by anthropologists is the tracing of language families. A language family is a grouping of languages based on linguistic similarities. While religions, geographic locations, regional languages and even skin color change within a related people, basic language traits such as syntax, phonetics, and semantics are strong indicators of a shared cultural heritage.

A map of language families was drawn from the Evolution of the Human Language Project (aka The Tower of Babel: <http://starling.rinet.ru/intrab.php?lan=en>), a compilation of linguistic research started by Sergei Anatolyevich Starostin in 1997 and continuously augmented by other linguistics researchers as new data becomes

Table 1

Number of vernacular regions per climate zone.

Climate zone	Number of vernacular regions
Continental subarctic (CS)	10
Tundra ice cap (TIC)	6
Desert (D)	13
High altitude (HA)	11
Humid mid latitude (HML)	8
Mediterranean (M)	11
Semi desert (SD)	15
Tropical savanna (TS)	13
West coast marine (WCM)	9
Wet equatorial (WE)	11
Humid subtropical (HS)	7
Total	114



Fig. 2. World map of language families.

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