FRANKS Leigh[1], Handley Heather[2], Karoly Nemeth[3], *The integration of Australasian oral traditions and scientific knowledge to advance our understanding of pre-historic volcanic activity and hazards*.
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Abstract:

Volcanic eruptions have been witnessed by humans for millennia and have had significant influence and impact on societies past and present. In prehistoric and preliterate societies knowledge of volcanism and its environmental and societal impacts were communicated orally, embedded in culture through myth, lore and ceremony and passed down through generations. Despite the value of traditional knowledge in developing a full understanding of volcanic histories and their impacts on society and the environment, along with effective communication of volcanic hazards, oral traditions and cultural activities that appreciate geological phenomena like volcanism have been generally overlooked or weighted in minimum in the currently dominant 'western' scientific approach.

Unlike the Mediterranean, which has a long history of migration and population exchange, Australasia, defined here as the region including Australia, New Zealand, New Guinea and the Oceania regions of Polynesia, Melanesia and Micronesia, remained relatively isolated and hosts some of the oldest living indigenous cultures with strong pre-literate oral traditions. Indigenous knowledge of eruptions at short-lived volcanoes in Australia is shown to have survived for tens of thousands of years.

Quaternary volcanic activity in eastern Australia is considered to still be active. The simultaneous occupation of the McBride and Atherton Basalt Provinces (ABP) by humans and evidence of recent eruptions presents the likelihood that indigenous societies were directly impacted by volcanism. The Gugu Badhun of the Kinrara volcano in northern Queensland possesses stories that remember catastrophic eruptions of lava flows. These lava flows have been dated approximately to have ceased by 7,000 (± 2,000) years ago. Other stories have survived that recount the violent phreatomagmatic formation of maar crater lakes, in the nearby Atherton Tableland. These eruptions have been described, along with the environment within which they occurred in, and handed down as oral traditions for possibly 230±70 generations. Some oral traditions are plausibly humankind's earliest environmental observations. Paleoenvironmental research has corroborated the prevalence of the type of vegetation that once existed and was described by these oral traditions. This study discusses the qualities of transgenerational communication (via oral traditions) that demonstrate the ability for detailed stories to endure through 'deep time'. Emerging awareness among academics and the public of globally distributed cultures that similarly demonstrate the ability to communicate detailed memories through 'geological time' is discussed. Oral traditions in Australian Aboriginal culture and also on a global scale are at risk of being lost, and it is hoped this study will contribute to the growing awareness of the need to preserve and celebrate ancient stories of geological change and human adaptation.