Ages of seamounts, islands, and plateaus on the Pacific plate

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ABSTRACT
Hotspot theory was first proposed on the basis of the observation of linear volcanic chains on the Pacific plate and assumed age progression within these chains. Knowledge of the ages of islands and seamounts is therefore of primary importance to analyzing intraplate volcanism and deciphering the history of hotspot tracks. In this paper we review published radiometric ages of islands and seamounts on the Pacific plate to help further reconstruction. We present a compilation of 1645 radiometric ages sorted by chain and further by island or seamount, along with a brief overview of each chain. Paleomagnetic ages obtained from seamount magnetism have not been considered, except for some oceanic plateaus (e.g., Shatsky rise). We do not consider foraminifer ages, which only give minimum ages of seamounts. Reliability problems intrinsic to the samples and to the radiometric dating methods must be considered. Dating of whole rocks must generally be disregarded unless they have been subject to special treatment, Ar/Ar incremental heating dating should be preferred over other methods, and data that do not pass the reliability criteria discussed by Baksi (this volume) should be disregarded. Thus use of the ages compiled in our database must be done in the light of filtering, and we encourage the user to check critically the initial papers in which the dates were published.