

African dust forms red soils in Bermuda

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In Bermuda, red iron-rich clayey soil horizons overlying gray carbonate rocks are visually stunning topographical features. These red soils, called terra rossa, are storehouses of information not only on past local processes that crafted the topography of the island but also on atmospheric circulation patterns that drove global climate during the Quaternary period (roughly 2.5 million years ago). The origin of the terra rossa, however, has remained a mystery for well over a century.

On one hand, dissolution features in the [carbonate rocks](#) suggest that local material, for example [volcanic rocks](#), could be the source of these red beds. On the other hand, Bermuda is also uniquely located to receive airborne dust from western Africa as well as from loess deposits of the Mississippi Valley of the central United States—both of which could also be potential sources of the terra rossa soils in Bermuda.

For the first time, Muhs et al. analyzed trace element concentrations in terra rossa soils of Bermuda. Matching the terra rossa trace element profile to that of each potential source material, the authors suggest that [airborne dust](#) originating from a vast swath of western Africa may be the most likely parent material of the red beds of Bermuda. Until now, scientists had assumed that dust transport from western Africa was limited to the southern Caribbean, with maximum transport to Barbados, and in small amounts to Florida. The new finding suggests that dust from Africa not only reached more northern latitudes during the Quaternary but also must have occurred in significant quantities to account for the formation of red soils in Bermuda.

More information: Soil genesis on the island of Bermuda in the Quaternary: The importance of African dust transport and deposition, Journal of Geophysical Research- Earth Surface, [doi:10.1029/2012JF002366](https://doi.org/10.1029/2012JF002366)

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