



ORAL PRESENTATION

Plate Tectonic Reconstructions of SE Asia: Bacon, Salami or Baloney?

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In recent years it has become much easier to make plate tectonic reconstructions. Reconstruction software has become much simpler to use, fragment details are relatively easy to acquire or define, and integration with GIS software is increasingly common. For these reasons there is now a plethora of tectonic models for SE Asia, which has always been a challenging region to reconstruct. Some models have been published and are peer-reviewed, while others are commercial products of uncertain quality.

We have produced plate tectonic models of SE Asia for many years, and our work is underpinned by our own field studies, including much new dating and sediment provenance work. With the help of industry, we have also been able to use seismic and multibeam bathymetry data, as well as publicly available shuttle and satellite topographic data. All these have contributed to an improved understanding of regional geology and tectonics and identified areas where new studies can contribute to improving our knowledge. There are many outstanding puzzles, but our ongoing work has shown that much information in the literature concerning the region is wrong, incomplete or needs reconsideration. Many 'established truths' are statements that are believed simply because they have been so often repeated and not challenged.

In contrast, many reconstructions available on the internet or as commercial packages rely on data compiled from the literature or undefined sources, and are commonly flawed, use outdated information, or are based on models now known to be wrong. They are produced by skilled computer users who have had little or no contact with SE Asia and are usually dependent on a mixture of old data. The bacon (or salami) slicer model for eastern Indonesia is one example. This model suggests that eastern Indonesia was assembled from tectonic fragments sliced from New Guinea and transported west to be accreted to the Sundaland margin. Fifty years ago, when first proposed and until quite recently, this was a plausible model. Recent work has shown it is no longer realistic. High precision dating of rocks and minerals, previously undated or dated by problematic techniques such as the K-Ar method, has revealed that they are much younger than assumed. Instead of a model of convergence and multiple collisions, a model of convergence associated with subduction-rollback and extension offers a better explanation of the region.

All reconstructions can be improved, and improvements will be based on first-hand knowledge of the region, accompanied by new studies, particularly field-based work and the use of samples from offshore. Such work requires the support of SE Asian governments and industry to help acquire samples and continue to fund new work by young scientists, working with international groups through which SE Asian students can gain access to skills and equipment not yet available in the region.

SPEAKER BIOGRAPHY

Robert Hall is Director of the SE Asia Research Group at Royal Holloway University of London, which has conducted field-based research in SE Asia for many years. Robert has been working in the region since 1984.