
A Model Reconstruction of The Last 50-Ma of South-East Asia's Plate-Tectonic History: A Tribute to Paul Tapponnier's Bold Creativity

Bernard Montaron*¹, Anne Briais , and Philippe-Hervé Leloup

¹Framwork SAS – Framwork SAS – France

Résumé

Fifty years ago a great originality of Paul Tapponnier's work has been to apply the concepts of plate tectonics to the continental deformation in the Mediterranean / Alpine and Himalayan realms. This is the subject of enduring controversy not only on continental deformation (i.e. the importance of large strike-slip faults), but also on the creation of marginal seas. The most emblematic example is that of SE Asia where he proposed that the unabated northeastwards penetration of India into Asia induced the eastward extrusion of Sundaland – the so-called extrusion model. In that model the Sundaland "Maritime Continental" prong protrudes southwards between India and China to reach incipient contact with Australia. Its eastern and western rims are both deeply dented by a-typical "marginal" basins: the South China and Andaman Seas, two of the Earth's youngest seas. The opening of both basins are kinematically and temporally linked with hundreds of km of south directed movement on thousand-kilometer-long Ailao Shan - Red River -Triton shear zone and Sagaing-West-Andaman faults. Their opening is thus Induced by the continental deformation, not by subduction dynamics. Paul Tapponnier worked since 2016 on a new version of the continental extrusion model that accounts for all known data and provides a consistent and coherent mechanism for the origin of most major faults and basins in the South-East Asia region. We present here that unpublished model through a series of geodynamic reconstructions.

Mots-Clés: Extrusion tectonics, South, East Asia, kinematic model

*Intervenant