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## **ABSTRACT**

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### **STATE OF THE ART, OR STATE OF DECAY? - THE ROLE OF CLASSIC GEOLOGICAL SKILLS IN 21<sup>ST</sup> CENTURY EXPLORATION.**

This paper presents some examples of the successful, low cost application of classic geological skills in hydrocarbon exploration. However some other examples are not included here because they are considered to give an advantage to Lundin, ConocoPhillips and their partners in the exploration of the Sundaland margin, a degree of secrecy that would seem at face value to indicate "state of the art" knowledge. This paper takes an alternative view, that such an exploration advantage was readily available decades ago, and it is the long term under-emphasis of basic geological skills in exploration that has produced such an easy void to fill.

The examples deal with the basic sedimentary geology of Java, a non-remote area with over a hundred years of exploration history. New evidence from basic geological work suggests that two of the guiding concepts of recent exploration in the region are incorrect, namely the very concept of such a thing as the "East Java Basin", and especially the rift-sag-inversion history that is supposed to have controlled the geology and petroleum systems in the region.

Data from Early Miocene sediments identifies a major tectonic event of exploration significance that occurs during the "sag" phase identified by previous workers. An examination of "sag" phase Oligo-Miocene carbonates shows a complex age and geographic distribution, suggesting local tectonic controls are more important than the assumed eustatic transgression.

Finally some aspects of Eocene geology are presented that indicate that we are a long way from understanding the distribution of the source and reservoir rocks of this age, and that the "rift" model is an inadequate scenario. In all these examples we stress the role of the basic geological skills used to overturn established ideas.



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The commercial value of these skills in the ongoing search for hydrocarbons in frontier areas is considered, partly by challenging the idea that we even know where the frontier areas are. More industry support of the geological surveys, and studies with proper academic attitudes and credentials, are required to produce a true “state of the art” geological knowledge for the region.