**ORAL PRESENTATION**

# New Data Brings New and Deeper Play Insight for North Madura, Indonesia

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## INTRODUCTION

North Madura has never lacked drillable prospects; however, results have had variable success.  Understanding where the main kitchen is located and the potential migration paths have been the main challenge, largely due to vintage seismic with limited offset, depth and old conventional recording techniques, which has made it difficult to map and to differentiate one kitchen from another.

## REVEALING NEW DEEPER PLAYS

New recording and imaging techniques have been introduced to Indonesia for the first time.  Broadband seismic via dual-sensor acquisition delivers the potential to record deep, low frequency data, and Full Waveform Inversion (FWI) allows the complex geology in the shallow section to be addressed, resolving gas and channel affects to ensure that deeper structure can be imaged correctly.  In North Madura, intra-carbonate reflectors have brought improved porosity estimations for the Kujung (Mid Miocene) level, where there are still a number of untested leads.  More importantly however, is the detailed imaging under the carbonates and opening up of the deeper Ngimbang play as well as the potential basement play.  The potential in the Ngimbang has been proven by the recent Sidayu well and this new play is prevalent across the area, as evidenced in the deep recorded dual-sensor data.  The kitchen area and migration paths into the potential shallower reservoirs are better understood and the plays in the self-sourcing Ngimbang are revealed for the first time.

The North Madura Platform and its associated grabens is an area previously thought to be understood, however it is clear that new technologies both in acquisition and imaging have provided new insights to mature areas and can open new plays and near field exploration.  Early observation suggests the existence of several mini-basins beneath the deeper carbonates level.

## SPEAKER BIOGRAPHY

Maz Farouki has a BSc degree in Physics from Manchester University, UK, and over forty years industry experience with seismic contractors, mostly on overseas assignments.  He has lived and worked in UK, Zaire, Pakistan, Algeria, Egypt, USA, Australia, Norway, Singapore and Malaysia, holding technical and management positions in data processing, imaging, and marine geophysics. Most of his tenure has been with two employers: the Seismograph Service Companies from the late 1970s, and Petroleum GeoServices (PGS) from the 1990s.  For a number of years, he specialized in velocity model building and depth imaging, at a time when the discipline was in its infancy in the industry. His current position is Geophysical Advisor for PGS Asia Pacific Marine Contract, based in Kuala Lumpur, Malaysia. He is an active member of SEG and EAGE, and has received 'best paper' awards at industry regional conferences and workshops.