



**From turbidites, through the shelf, to the deltaic deposits:
The Modern and Ancient Mahakam Delta Sedimentology**

A Technical Field Trip for Geoscientists

May 11 - 15, 2010



Leader: Irfan CIBAJ (Total E&P Indonesia)

Fee:

IPA Prof Div Member US\$ 1,900

Non IPA Prof Div Member US\$ 2,000

(including Jakarta - Balikpapan - Jakarta airfare, land / sea transportation, hotels, meals, refreshments and hand-out)

Limit: 12 Persons

The Mahakam delta is a very well known example of deltaic depositional environment easily accessible for observations and relatively undisturbed by large scale human activities. It has been subject of numerous studies and publications; the very important studies and publications of G.P. Allen during 70-ies, 80-ies and 90-ies contributed to making it worldwide known as one of the classics of sedimentology.

The modern Mahakam delta is dominated by a mixed fluvial-tidal influence and has been prograding since the last Holocene stillstand 7-8000 years ago. The major depositional environments of the modern Mahakam delta are accessible by boat. Sand is still being deposited in the delta front mouth bars, which are very often immersed during the low tide giving the opportunity to walk upon and make observations of the sedimentary processes.

New Lower to Middle Miocene outcrops are exposed in the vicinity of Samarinda (the capital of East Kalimantan Province). The Lower Miocene rocks show basin floor and slope turbidites; most of them deposited in channel-levee systems. Prograding-retrograding shallow marine parasequences overlay slope deposits exposing altogether 1000 m of sedimentary section. These sediments represent the transition from turbidites to the Middle Miocene deltaic and fluvial deposits, in the area.

New outcrops have been very recently open in the area exposing an extremely beautiful fluvial section above shallow marine deposits. Deltaic deposits overlay the fluvial section showing big shifts in depositional environments. The 10.2 My. sea level fall, exposing an important sequence boundary, is very well documented in the outcrops.

The presence of ancient and modern deltaic depositional systems in the same locality represents a unique opportunity to better understand these complex systems. The Field Trip allows the comparison between modern and ancient delta sedimentary characteristics. Detailed observation of the outcrops will give the participants the keys to interpret ancient depositional environments. Vertical and horizontal evolution of these environments tracked in an almost continuous stratigraphic section of about 3000 m provides the key to understand the geological history of the basin.

Participants will fly from Jakarta to Balikpapan on Tuesday May 11 in the morning. The day starts with visiting selected cores from Total subsurface data base. We travel then by bus to Samarinda, check in Borneo hotel and have a half day introductory course on basics of deltaic sedimentology and Mahakam deltaic system. Wednesday 12 and Thursday 13 will be spent examining Lower to Middle Miocene rocks in the outcrops around Samarinda. Friday May 14 we will be visiting the modern delta environments by speedboat. Saturday May 15 will be spent examining ancient deltaic and fluvial sediments in the outcrops around Samarinda. Return to Jakarta in the same day in the evening of May 15.

The IPA Modern and Ancient Mahakam delta Field Trip is made possible by TOTAL.

Registration:

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