

# **PS Surface to Subsurface: Myanmar's Geology Consolidated\***

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## **Abstract**

Myanmar is one of the World's current hotspots for oil and gas exploration, with enormous economic potential thanks to an estimated 50 million barrels of oil and around 10 Tcf of natural gas reserves, in addition to a wealth of industrial minerals and gemstones. Yet in spite of this mineral richness, and being one of the World's first oil producing countries, both on- and offshore exploration has been limited. We see this as being due to a number of interlinked reasons. Firstly, the geology of Myanmar is diverse and complicated. Structurally and stratigraphically, the region is extremely complex, and the diachroneity of stratigraphic units and unconformities makes understanding the lithostratigraphy far from trivial. Secondly, the quality, availability and accessibility of geological data are extremely variable. Indeed, the current, publicly available geological map coverage is piecemeal, and scales and stratigraphic nomenclature are inconsistent, and have been reported to us as being "simply incorrect and confusing" in certain areas.

The majority of Myanmar was mapped in considerable detail by field teams of the Myanmar Oil and Gas Enterprise (MOGE) during the 1970's and subsequent decades. However, the accessibility of this valuable resource of geological data is extremely limited, and the continuity of the mapping between different areas is uncertain. Publications arising from academic research have aided in revealing some of the geological detail, but again, provide only piecemeal coverage. Other data, specifically subsurface data, remains locked up in industry reports, and thus essentially inaccessible to regional newcomers. Thus the need for a regionally consistent, detailed and accessible geological dataset is very real, and necessary to unravel the region's geological and tectonic heritage, and help realise the full potential of Myanmar's natural resources.





## Surface to Subsurface: Myanmar's geology consolidated

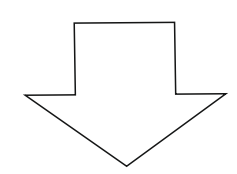
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### Introduction

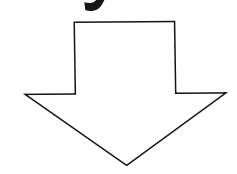
Myanmar is one of the World's current hotspots for oil and gas exploration, with enormous economic potential. However, the geology of Myanmar is diverse and complicated which has hampered exploration efforts both on- and offshore. Structurally and stratigraphically, the region is extremely complex, and the quality, availability and accessibility of reliable geological data are extremely variable.

In order to address some of the above issues, NPA Satellite Mapping (part of CGG) has embarked on a detailed study of Myanmar's geology, through detailed surface geological mapping, and subsurface section building – primarily based on satellite data interpretation, integrated with knowledge and expertise from local geologists and international academics.



### Historical data

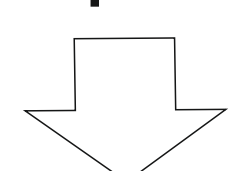
The majority of Myanmar was mapped in detail by field teams of the Myanmar Oil and Gas Enterprise (MOGE) during, and subsequent to, the 1970's. However, the accessibility of this valuable resource is extremely limited, and the continuity of the mapping is uncertain. Publications arising from academic research have revealed some of the geological detail, but provide only piecemeal coverage. Other data, specifically subsurface data, remains locked up in industry reports, and thus essentially inaccessible to regional newcomers. Thus the need for a regionally consistent, detailed and accessible geological dataset is very real, and necessary to unravel the region's geological and tectonic heritage, and help realise the full potential of Myanmar's natural resources.



### Our solution

NPA Satellite Mapping are mapping the region at 1:200,000 within a GIS environment. All mapped structures and lineaments are being fully attributed. Structure type, and where possible, the timing of structural activity is being captured. Similarly, the lithostratigraphy is being completely re-mapped in detail, and fully attributed to capture everything we know about every geological unit.

This approach allows the spatial and temporal relationship between structures and stratigraphy to be visualised; an important aspect of play evaluation. We are then taking the study into the subsurface, by constructing a number of detailed cross-sections across the area. These will dissect all the onshore sedimentary basins, supplemented by a number of key regional lines that will cross all the main physiographic zones of Myanmar



### Application and benefits

The study will play a vital role in improving our understanding of Myanmar's geological evolution; reducing exploration risk in the hydrocarbon sector and providing a valuable resource for Myanmar's mining industry.

### From imagery to information

