Basins & Geology

The IHS Basin Database contains more than 5,080 mappable geological provinces, including North America. It assembles worldwide geological data in a consistently interpreted and standardized reference format for basin analysis, play and petroleum studies on a regional and global scale.

No other database offers this unique aspect, making any analysis more valuable than just the geological interpretation.

As all data is available in standard database format, comparative and analogue studies are easily undertaken using IHS GIS software and can be printed in the standard paper format of a Basin Monitor.

Basin Database Enhancements

During the editing of the basin monitors, IHS geologists standardize and integrate the geological information into our key critical database components, such as stratigraphic units, plays and petroleum systems.

Key Highlights – 2015

- 13 new Basin Monitors completed
- 37 Basin Monitors completely reviewed
- 14 Basin Monitors partially reviewed
- 504 basin, sub-basin and non-prospective province limits updated
- 802 new Basin Images loaded

A new Quality Goal on ensuring consistency between the Stratigraphy and Field databases led to the update of 33% of stratigraphic units.

Furthermore, more than 22% of our petroleum systems and around 9% of our bibliographic records have been updated. Also, all conventional plays, representing nearly 90% of our database, have been given a parent play attribute.
**Basin Monitors – 2015**

A total of 50 hydrocarbon basins were completed as Basin Monitors during 2015. Our aim was to provide a reasonable balance between mature and frontier areas, and between classic international exploration areas and new areas. Our selection was made by our regional teams considering the industry activity such as bidding rounds and farm-in offers, but also according to the exploration interest like the discovery of new play in a particular region of the world.

**Africa**

Five basins in Africa have been analyzed (Senegal (MSGBC), Chad, Zambezi Delta, Tanzania and Gabon Coastal basins). The exploration success in the Gabon Coastal basin is attributed to two distinct petroleum play fairways: a pre-salt play developed largely in the South Gabon Sub-basin and a post-salt play developed largely in the North Gabon Sub-basin. Pre-salt Lower Cretaceous plays offer great potential for fields with large recoverable reserves compared to other proven plays in the basin. On the shelf, post-salt Upper Cretaceous delta and Tertiary channel plays are in a mature stage of exploration and are likely to continue to provide generally small discoveries.

**Australasia**

A complete review of the Papuan Basin has been completed for the Australasia region. Exploration in the Papuan Basin is still fairly immature in terms of exploration maturity, with a total of 51 discoveries made so far. The basin is considered to have significant remaining potential, particularly onshore, with many large prospects in the inventories of several operators. Exploration in the Papuan Basin has been concentrated in the Papuan Fold Belt, on the well-established Toro, Imburu and Ieru structural play trends. Plays in less explored areas of the basin, namely the Fly Platform, Irian Jaya Fold Belt and the Aure Fold Belt, along with currently unproven fold belt plays, are thought to offer further exploration potential.

**CIS**

The CIS region has seen the extensive review of the West Siberian Mega-basin (Kaymys-Vasyugan, South Kara-Yamal, Nadym-Taz, Ural-Frolov and Middle Ob provinces) and of the Timan-Pechora Basin. Total undiscovered resources of the onshore and offshore sectors of the Timan-Pechora Basin are significant. However, they occur in small prospects and future discoveries will probably be the result of the continuing application of new technologies and integrated multidiscipline studies. The foredeep areas are considered to have the best potential for gas and the platform areas for oil. The Lower Paleozoic play group has major future potential throughout the basin, but all play groups are thought to have considerable potential.
Europe

Three basins monitors in Continental Europe have been published since January 2015 including the Mediterranean Ridge, Catalano-Balearic Basin and Alentejo Basin. The Alentejo Basin is located offshore, on the Atlantic Margin of southern Portugal. Several mapped structural and stratigraphic leads have large potential. Many of these are located in water depths shallower than 2,000 m (Sandnes & Myklebust, 2005).

Regarding the North West Europe region, the Moray-Firth Province, Anglo-Dutch Basin and Norwegian-Danish Basin, have been completely reviewed. Future exploration activity in the Norwegian-Danish Basin is likely to be concentrated on the Siri Fairway play. The Middle Jurassic play in the Norwegian sector still has remaining potential especially in the deeper sub-basins. A better understanding of burial, maturation and migration histories for both the Tau and Fjerritslev formations will be required to identify local source rock kitchens necessary to develop the Jurassic play further.

Far East

A significant number of basin monitors have been completely reviewed in the Indian Subcontinent (Satpura, Cuddapah and Saurashtra basins), Northeast Asia (South Huabei, Bohai Gulf, Junggar, South Yellow Sea, Yinggehai, Qaidam, East China Sea, Beibu Gulf, Hailar, Turpan-Hami and Qiongdongnan basins) and Southeast Asia regions (Baram Delta, Northwest Sabah, and Southwest Palawan basins). Southwest Palawan is regarded as very lightly explored and focused primarily on the Oligocene-Miocene Pag-Asa Formation and carbonate plays with only one non-commercial gas field discovery to date. This basin has a reasonable potential based on its location in between the most prolific basins in South East Asia, which are the Northwest Sabah Province and the Northwest Palawan Basin.

Frontier North America

The region has seen the addition of five basins (Middle Tanana, Jeanne d'Arc, Central Ridge, Flemish Pass and Norton basins) and the complete review of the Eagle Plain Basin. The Middle Tanana Basin is an under explored frontier basin in United States. Six exploratory wells have been drilled in the basin, but no discoveries have been made to date. Hydrocarbon shows and thermogenic micro-seeps in surface sediments have been recognized. Drilling and geochemical studies indicate a hypothetical petroleum system in the basin.
Latin America

Basin monitors completely reviewed in this region comprise the Sabinas, Tampico-Misantla and Sureste basins in Mexico, the San Jorge Basin in Argentina and the Ucayali Basin in Peru and Brazil. The Ucayali Basin remains relatively immature and underexplored, despite the discovery of the giant Camisea area gas/condensate fields, which are now being produced. The existence of a gas/condensate pipeline from the Camisea area fields to Lima (capital city) changes the game entirely for the Ucayali Basin, providing a route for transporting hydrocarbons to market. Cretaceous subtle structural traps in updip positions from the fold belts, sub-thrust anticlines in Cretaceous and Paleozoic objectives and channelized stratigraphic traps are all much underexplored in this promising productive basin.

Middle East

The Qom Basin Monitor has been updated and a new basin monitor on the Antalya Basin has been issued this year. The Antalya Basin is located in southwestern Turkey; the onshore portion of the basin lies on the southern flank of the Central Taurides and the basin extends offshore into the Mediterranean Sea. Although there is some compelling evidence for hydrocarbons onshore where surface oil and gas seeps have been found near to the margins of the Antalya Basin, it is likely that the greatest potential exists offshore.