

2018 GLOBAL EXPLORATION ACTIVITY STABLE AND 2019 OUTLOOK UPBEAT

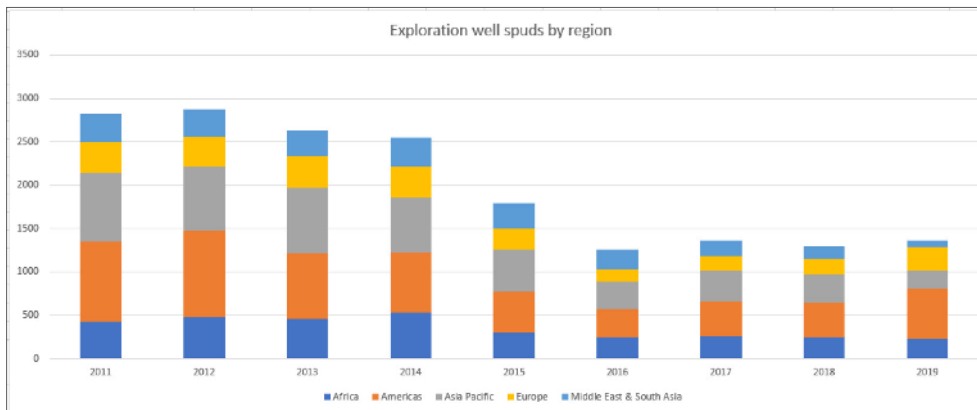


Investment in international oil & gas exploration is continuing to show stability following the post-oil price crash low seen in 2016. This is reflected in exploration drilling and licensing data from 2018 and Q1 2019 continuing the trend shown in 2017 with some strong indications of increasing investment through this year.

Here Is the 2018 Global exploration activity and 2019 outlook

Exploration Drilling

Worldwide exploration drilling stabilized during 2018 with 1,298 wildcat and appraisal well spuds recorded during the year, in line with 1,358 spudded in 2017. The marginal decrease was observed in onshore drilling whereas the number of offshore spuds increased from 449 to 456. A total of 202 new-field wildcats were recorded offshore, 97 of which were in deepwater (>200m) compared to 87 in 2017.



(2019 = Q1 Spuds Plus Planned)

IOCs drilled the majority of new-field wildcats in 2018 increasing activity by 44 percent with 320 wells spudded compared to 222 in 2017. Majors and supermajors increased new-field wildcat drilling by 36 percent with 112 spudded compared to 82 in 2017, and dominated frontier deepwater exploration operating 56 of the wells. NOCs spudded 234 new-field wildcats in 2018 compared to 261 in 2017, 64 percent of which were onshore.

The number of discoveries reported to date for 2018 stands at 225 out of a total of 564 new-field wildcats completing operations over the year, which gives a success rate of 40 percent. This compares to a rate of 48 percent with 270 discoveries reported for 2017. Of the 259 discoveries reported in 2018 and Q1 2019 to date, 25 are estimated to hold recoverable resources in excess of 100 MMBoe with 17 of these being drilled in deepwater by supermajors.

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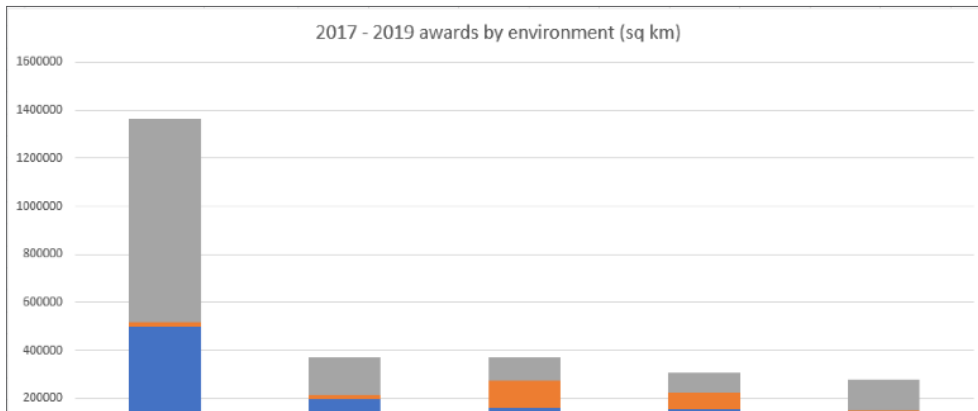
2018 and Q1 2019 discoveries (excludes Former Soviet Union and non-frontier areas of United States and Canada)

Looking ahead at planned drilling activity through the remainder of 2019, the status quo looks set to continue with a picture of stability and slow recovery. Up to 1,400 exploration wells could potentially be spudded by the end of the year. Q1 2019 to date has seen 201 exploration well spuds reported, 98 of which are new-field wildcats with 23 in deepwater offshore areas. The total number of deepwater new-field wildcats spudded by year end is predicted to be in excess of 100 continuing the trend of increasing frontier exploration with more high-impact wells.

Awards and Bid Rounds

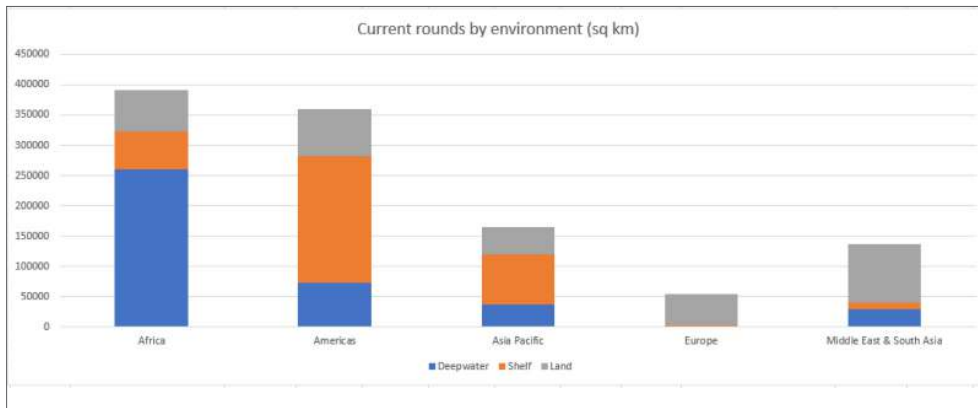
Exploration license awards totaled 1.02 million sq km in 2018, down from 1.9 million sq km in 2017, but an increase from the 700,000 sq km in the low of 2016. Of the 3.1 million sq km awarded since 2017, 55 percent has been offshore with 36 percent deepwater which compares to 19 percent of exploration awards in deepwater areas in the three years prior to 2017.

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(Excludes 427,000 sq km Solomon Island shelf block from Asia Pacific)

During late 2018 and early 2019, there has been a marked increase in the number of bid rounds launched compared to the previous year with 46 rounds ongoing across 34 countries in March 2019, compared to 27 across 20 countries the previous year. A number of countries have launched multiple bid rounds while others have moved towards open door systems in an attempt to maximize the amount of acreage on offer. Exploration acreage currently on offer in licensing rounds is 1.1 million sq km with 69 percent of that offshore and 36 percent in deepwater.



“Drilling and licensing data from 2018 and 2019 to date clearly show increasing investment in frontier deepwater exploration,” says Dai Jones, Director of International Upstream Data with Drillinginfo. “While a small increase in the total number of frontier exploration wells drilled during 2019 is predicted, the increase in deepwater acreage recently awarded and currently on offer in bid rounds is significant. When considered with the high percentage of new discovery volume coming from frontier plays, it is a clear indicator of the potential for sustained growth beyond 2019.”

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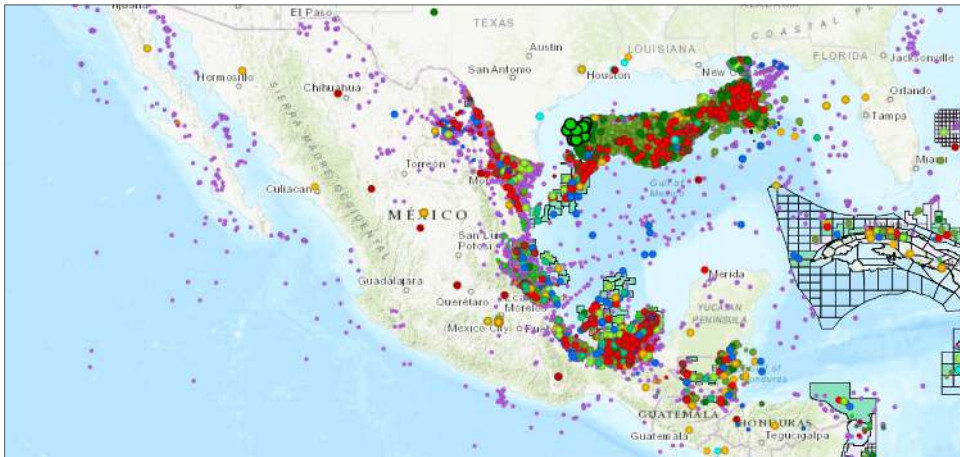
Latin America and the U.S. Deepwater Gulf of Mexico have continued to lead exploration drilling with the 396 wells spudded during 2018 representing 31 percent of the year's total, up slightly from 30 percent in 2017. ExxonMobil's Stabroek block has continued to dominate in terms of discoveries, with Tilapia and Haimara the most recent in 2019, adding a further 500 MMboe to recoverable resources already more than 5 Bboe with further new-field wildcat and appraisal drilling planned for the remainder of 2019.

In Brazil, Equinor reported the pre-salt Guanxuma well as discovery and although no official announcement on size has been made, it had a predrill estimate of 700 MMbo to 1.3 Bboe. In the U.S. Gulf of Mexico, Shell's Dover discovery on the Norphlet Trend is estimated to contain in excess of 100 MMbo recoverable resources.

In terms of licensing policy, Latin America has seen several countries making changes to encourage investment with Colombia relaunching its Permanent Area Allocation Process and Brazil putting in place a Permanent Offer round with 630 blocks having environmental approval.

Changes under the AMLO government in Mexico may see a slow in licensing rounds and return to dominance of Pemex. Argentina's Offshore Exploration Plan has seen the largest single offer of new shelf and deepwater acreage through 2018 and 2019, with more than 200,000 sq km available in the Austral-Malvinas, Northern Argentina, and Southern Argentina basins.

With only one deepwater new-field wildcat drilled on the acreage to date and 17 companies registering interest, it represents a potentially significant new exploration area on the Atlantic Margin.



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Africa saw 247 exploration wells spudded in 2018 representing 19 percent of the year's worldwide total, remaining in line with 19 percent in 2017. Onshore drilling in Algeria and Egypt accounted for 78 percent of this activity with Algerian NOC Sonatrach alone spudding 76 wells, second only to CNOOC in China. In 2014, 67 deepwater new-field wildcats were spudded offshore Africa representing 33 percent of the total worldwide. This fell to just 12, representing 14 percent in 2016, and has remained at the level with 14 and 12 spudded in 2017 and 2018 respectively.

Success rates have been high with nine deepwater discoveries since the beginning of 2018. The most significant have been made by Eni in Angola (Kalimba, Afoxe, and Agogo), by Total with Ndouma in Congo, and most recently Brulpadda offshore South Africa. Frontier drilling looks set to increase through 2019 and into 2020 continuing to be led by Total and Eni with more than 15 high-impact wells planned from the MSGBC Basin around to the Mozambique. African exploration acreage awards have seen a strong

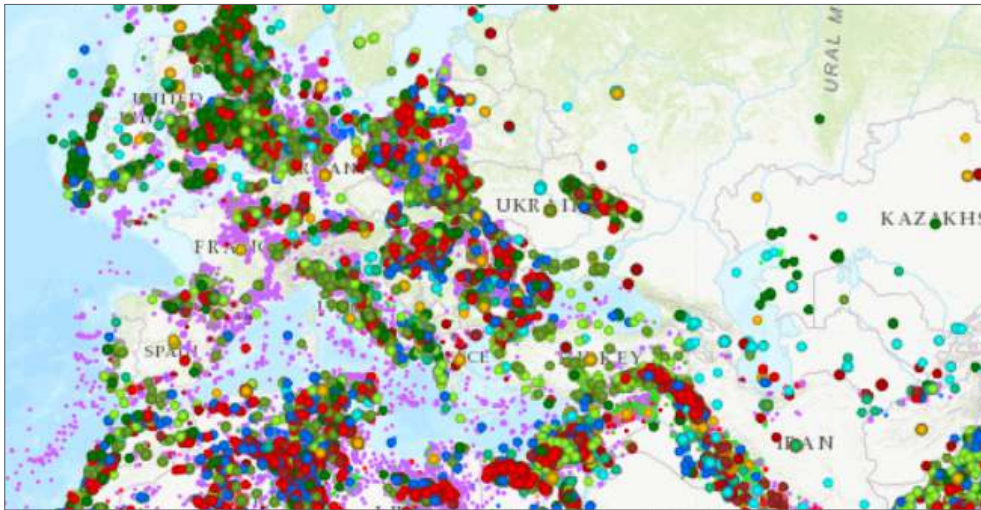


upturn following a 2016 low of 220,000 sq km, and 2017 saw 840,000 sq km awarded, followed by 490,000 in 2018, and 340,000 sq km to date in Q1 2019, which together make up 44 percent of the worldwide total over the period. This includes 158,000 sq km of primarily deepwater acreage in the MSGBC Basin going to supermajors Total, ExxonMobil, and Shell.

In addition to recent awards, 390,000 sq km is available in current bid rounds across Africa including 260,000 sq km in deepwater areas including Ghana, Gabon, Congo, and Somalia. This represents 65 percent of the deepwater acreage available and interest from majors and supermajors is high.

“An additional 1,706,000 sq km acreage is anticipated to be made available in bid rounds before the end of 2019 in Equatorial Guinea (to be launched April 3), Angola, Sudan, and Uganda,” noted Emma Woodward, Regional Manager for Africa and Middle East at Drillinginfo. “However, the vast amount of acreage currently available means that some good opportunities are likely to be overlooked as companies are reporting they are struggling to review the volume of data currently available to them.”

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In **Europe** 178 exploration wells were spudded in 2018, increasing slightly from 169 in 2017 and 137 in 2016. There were 28 frontier deepwater new-field wildcats spudded during 2018 with 25 of them offshore Norway, where OMV made a notable gas discovery in the Norwegian Sea on Hades/Iris. In the United Kingdom, Total reported an estimated 1 Tcfg recoverable resources in the West of Shetland Glendronach discovery, while in January 2019 CNOOC discovered more than 200 MMboe in the Central Graben Glengorm well. Cyprus has seen the most significant recent European discoveries with Eni's February 2018 Calypso, potentially holding 6-8 Tcfg in place and ExxonMobil's 2019 Glaucus discovery 5-8 Tcfg. Exploration acreage awards have been relatively low in Europe since 2017, accounting for less than 10 percent of the worldwide total, however the Eastern Mediterranean looks set to remain a hotspot with licensing rounds in Israel and Lebanon.

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Exploration drilling in the **Asia Pacific** region has remained flat since the low of 2016 with 333 exploration wells spudded in 2018. South East Asia has seen a small decline in drilling while Australia has had the number of spuds almost double from 44 to 87 driven by IOCs targeting lower risk onshore plays, where Santos alone have spudded more than 50 wells since the start of 2018. NOC-dominated North East Asia and South Asia were two of the areas where activity was least affected during the downturn and have remained stable since. While there have been no new major deepwater discoveries in the region during 2018, Quadrant's Dorado 1 in the Roebuck Basin offshore Western Australia was significant, and in the Tarim Basin onshore China, CNPC made a multi Tcf gas discovery with the Zhongqiu 1 well.

Exploration awards in the Asia Pacific have remained consistent since 2016, with the 180,000 sq km in 2018 showing an even split between land, shelf, and deepwater. In addition, current bid rounds cover approximately 150,000 sq km with bidding active in Indonesia, Malaysia, and the Philippines and results pending offshore Australia.

The 2018 and Q1 2019 data shows global exploration activity to have stabilized with increased investment in frontier deepwater plays, particularly in Latin America and Africa, predicted through 2019. This major and supermajor-led recovery is expected to continue while oil prices remain above \$60/bbl with the majority of new reserve volumes coming from these plays. However, there is currently no indication of activity returning to pre-2014 levels across the board.

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