Data Transmission and Improved Resolution—A new telemetry platform that enables geosteering of deep wells is available on Schlumberger logging-while-drilling (LWD) and measurement-while-drilling (MWD) systems. On a recent well, drillers were able to drill faster with more data for real-time decisions. The Orion II telemetry system (Fig. 1) has a capacity of 60 log curves at 120 bps, each with a 6-in. sampling rate, while drilling ahead at 250 ft/hr. Downlink commands were sent in real time without affecting delivery of measurement data to surface. The system enables communication with instrumented bottomhole assemblies whether drilling at high penetration rates or operating logging equipment in washdown mode. More data and better-resolution images can be transmitted in real time, enabling better drilling decisions. Both drilling efficiency and geosteering accuracy are enhanced. This telemetry enhancer combines new data-compression technology, housed in each tool, with new surface and downhole sensors that modulate/demodulate signals and overcome interference from drilling and rig noise, even in harsh environments. The new software suppresses noise while decoding and enhancing signals received through the mud column as far as 7.6 miles downhole. For additional information, visit www.slb.com/orion2.