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Using DSDP/ODP/IODP core photographs and digital images in the classroom

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Since the late 1960's, several scientific ocean drilling programmes have been uncovering the history of the Earth hidden beneath the seafloor. The adventure began in 1968 with the Deep Sea Drilling Project (DSDP) and its special drill ship, the Glomar Challenger. The next stage was the Ocean Drilling Program (ODP) launched in 1985 with a new drill ship, the JOIDES Resolution. The exploration of the ocean seafloor continued, between 2003 and 2013, through the Integrated Ocean Drilling Program (IODP). During that time, in addition to the JOIDES Resolution, operated by the US, the scientists had at their service the Chikyu, operated by Japan, and Mission-Specific-Platforms, funded and implemented by the European Consortium for Ocean Research Drilling. Currently, scientific ocean drilling continues through the collaboration of scientists from 25 nations within the International Ocean Discovery Program (IODP).

Over the last 50 years, the scientific ocean drilling expeditions conducted by these programmes have drilled and cored more than 3500 holes. The numerous sediment and rock samples recovered from the ocean floor have provided important insight on the active biological, chemical, and geological processes that have shaped the Earth over millions of years.

During an expedition, once the 9.5-meter long cores arrive from the seafloor, the technicians label and cut them into 1.5-meter sections. Next, the shipboard scientists perform several analysis using non-destructive methods. Afterward, the technicians split the cores into two halves, the "working half", which scientists sample and use aboard the drilling platform, and the "archive half", which is kept in untouched condition after being visually described and photographed with a digital imaging system. The shipboard photographer also takes several close-up pictures of the archive-half core sections.

This work presents some examples of how teachers can use DSDP/ODP/IODP core photographs and digital images, available through the Janus and LIMS online databases, to develop inquiry-based learning activities for secondary level students.