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International Ocean Discovery Program (IODP): The Latest Incarnation of Almost Five Decades of Scientific Ocean Drilling Excellence

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IODP (2013-2023) represents the latest phase of the longest running and most successful scientific collaboration in the history of the Earth sciences. IODP follows on from three earlier phases, the Deep-Sea Drilling Project (1968-1983), the Ocean Drilling Program (1983-2003) and the Integrated Ocean Drilling Program (2003-2013). IODP is a collaborative program, in which member countries (more than 25) bring a variety of drilling/coring/sampling capabilities to explore changes in the Earth system through geologic time. The United States (U.S.) supplies IODP's flagship – the leased commercial drillship *JOIDES Resolution* (Figure 1A). The "JR", as she is affectionately called by the thousands of scientists and



Figure 1. IODP's diverse drilling capabilities. A. *JOIDES Resolution*, non-riser. B. *Chikyu*, riser-equipped. C. "Mission-specific", for drilling targets from shallow reefs to ice-covered high latitudes.



students around the world who have sailed aboard her on more than 100 drilling expeditions, has been serving the scientific drilling community since 1984. To address deep objectives within sedimented continental margins and in the crust, Japan contributes the riser-equipped *Chikyu* (Figure 1B). Finally, the European Consortium for Ocean Research Drilling (ECORD) contributes "mission-specific platforms" (MSPs) (Figure 1C) to address targets not suitable for the other platforms, e.g., those in shallow

water, like reefs, and in ice-covered high latitudes.

IODP is entirely motivated by competitively reviewed proposals from the international community. These proposals respond to a decadal Science Plan, "Illuminating Earth's Past, Present and Future" (see iodp.org), developed and written in response to extensive discussions among the world's best Earth

scientists. The vast majority of proposals come from scientists in member countries and consortia, but IODP proposals also include scientists from non-member countries interested in ocean drilling. IODP is especially interested in adding countries bounding the South Atlantic to its membership ranks, like South Africa.

All drilling expeditions are staffed by technicians and scientific “parties” derived from member country/consortia communities. Those parties represent a spectrum of appropriate disciplines, and include graduate students and educators. Members are expected to provide funding (e.g., salary, fellowships) for that participation, along with post-expedition support for scientific research, education and outreach, workshops, and other activities that showcase the program’s world-class scientific results, e.g., lectures at academic institutions and museums. Cores are stored in perpetuity, in repositories in Japan, Germany, and in the U.S., as the ultimate legacy of scientific ocean drilling.

