Post-2023 IODP Science Framework

EXPLORING EARTH BY SCIENTIFIC OCEAN DRILLING
International workshops

J-DESC workshop
PROCEED workshop
ANZIC workshop
NEXT workshop
IODP-China workshop
(>650 participants)

Science Framework Working Group meeting
(25 participants)

NEW SCIENCE FRAMEWORK STRUCTURE & ROADMAP
NOMINATED TWO LEAD EDITORS

SCIENCE FRAMEWORK Writing Team Appointed

Community Input via IODP.org
Endorsed by IODP Forum 2019
“The new science framework has an outlook greater than 25-years, ending in 2050”
“This framework is designed by and for the future generations of scientific ocean drilling scientists”
“The major objective of scientific ocean drilling through 2050 is to advance our understanding of Earth as an interconnected system”
framework  noun

Definition of framework

1  a basic conceptional structure (as of ideas)
Maximizing impact of scientific ocean drilling

**Multi-expedition, foundational scientific ocean drilling endeavors that cross-cut multiple strategic objectives**

**Forms core of the science framework, addressing all topics that cross-cut all research and disciplines in scientific ocean drilling**

**Open-ended and broad to encourage innovation and discovery through the typical IODP-style bottom-up proposal process**

**Require long-range vision and multi-disciplinary efforts over 10-20-year time periods of great societal relevance**

**Maximizing impact of scientific ocean drilling**

**New opportunities and providing links to other major allied programs**
Habitability on Earth
Defining the conditions for and role of life in the sub-seafloor

Feedbacks in the Earth System
Constraining the processes that operate between oceans, Earth, life and climate

Earth’s Climate Factory
Ice sheets, global ocean circulation, monsoon, sea level under different climate states

Earth’s Past as a Spotlight on the Future
Elucidating future climate and environment using marine records of Earth’s history

Tipping Points in Earth’s History
Identifying causes, scales and consequences of Earth system perturbations

The Life Cycle of Earth’s Tectonic Plates
Generation, aging and death of lithospheric plates and impacts on Earth system

Global Cycles of Energy and Matter
Modes, magnitude and impacts of energy and mass transfer in the Earth system

Natural Hazards Impacting Society
Researching and monitoring natural hazards in the marine environment
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STRATEGIC OBJECTIVES

1. Habitability on Earth
2. Feedbacks in the Earth System
3. Earth’s Climate Factory
4. Earth’s Past as a Spotlight on the Future
5. Tipping Points in Earth’s History
6. The Life Cycle of Earth’s Tectonic Plates
7. Global Cycles of Energy and Matter
8. Natural Hazards Impacting Society

FLAGSHIP INITIATIVES
- **FEBRUARY 2020 ➔ VERSION #1**
  - We will be seeking input on the *scientific content*
  - Comment period open on IODP.org for 3 weeks

- **APRIL 2020 ➔ VERSION #2**
  - We will be seeking input on the *overall document*
  - Comment period open on IODP.org for 2 weeks

- **JUNE 2020 ➔ ONLINE PUBLICATION**
  - Archived on IODP.org as a living document
Thank you to:

- All Workshop Participants and Organizers (>650)
- Science Framework Working Group Delegates (25)
- The Authors (16) and Reviewers (22)
- PMO’s and Sponsors