



## **IODP Forum April 26 and May 6, 2021 Consensus Statements**

**Consensus Statement 1:** The Forum received and discussed an insightful document (attached) detailing the aspirations of scientists regarding the future scientific ocean drilling, produced by Anthony Koppers, Rosalind Coggon, and the Science Framework Working Group. The Forum warmly thanks all contributors to this document for their efforts in stimulating discussion related to potential new program(s).

**Consensus Statement 2:** The Forum applauds the proposed extension of the Kochi Core Centre in Japan. The Forum reiterates that the international IODP core repositories are essential for the scientific success of the current program and any future program(s), and for ensuring the long-term scientific legacy of more than 50 years of scientific ocean drilling operations.

**Consensus Statement 3:** The Forum enthusiastically agrees with the establishment of a discussion group consisting of representatives of the funding agencies from all current IODP international partners. The aim of this initiative is to encourage discussion among the funding agencies about potential funding routes for a post-2023 program(s). This funding agency discussion group should meet for the first time after the Forum meeting in October 2021.

**Consensus Statement 4:** The Forum applauds the efforts of the JRFB Working Group for Science Framework Proposal Requirements and Assessments (WG-SFP). The Forum warmly received the interim report of the WG-SFP as presented by the Chair Ken Miller and was grateful for the opportunity to react to the presentation. The Forum agrees that the WG-SFP has made substantial progress on rules for proposal submissions under the 2050 Science Framework and looks forward to receiving the final working group recommendations following presentation at the JRFB in June 2021.

# Science Framework Working Group

## 2020 Consensus Statements

**3 May 2021**

This document has been assembled based on online discussion by the **Science Framework Working Group** (SFWG) on 5-6 August 2020 and subsequent discussions during the **IODP Forum** meetings of 17-18 September 2020 and 26 April and 6 May 2021. Following the creation and publication of the new **2050 Science Framework** (Koppers, A.A.P. and R. Coggon, eds. 2020. *Exploring Earth by Scientific Ocean Drilling: 2050 Science Framework*. 124 pp. <https://doi.org/10.6075/JOW66J9H>) the **Forum Chair** asked these groups to discuss and consider what the science community thought potential future strategies, concerns, and challenges would be for implementing this framework.

These discussions produced eight **Consensus Statements** presented in this document, including short lists of supporting observations and implementation ideas. With these **Consensus Statements** we hope to provide a basis for near-term discussions when the wider IODP community under the auspices of the **IODP Forum** starts to work on transition planning.

**Anthony Koppers, Chair SFWG and Lead Editor 2050 Science Framework**

**Rosalind Coggon, Lead Editor 2050 Science Framework**

on behalf of the Science Framework Working Group and the Science Framework Writing Team

### **CONSENSUS STATEMENT #1**

The *Enduring Principles* (p.7) in the *2050 Science Framework* are critical in providing the foundation for a cohesive set of ground rules for future scientific ocean drilling program(s).

#### SUPPORTING OBSERVATIONS AND IDEAS

- The eight Enduring Principles in the 2050 Science Framework are one of the strengths of the current IODP program.
- New members and platform providers must agree to adhere to these Enduring Principles requiring agency-to-agency agreements (MOUs) to ensure these are ground rules.
- Standard Data as well as FAIR (Findable, Accessible, Interoperable, Reusable) databases are crucial to allow for new big data analytical approaches. In addition, we must start to use modern open source approaches (e.g. Github) to share and version data and software among the global scientific ocean drilling community.
- We must explicitly advance equity, diversity, and inclusion in all aspects of participation including training, panels, meetings, sailing, workshops, and leadership, as well as during proposal writing.
- Member countries should proactively work on transparent regional planning and agree to assist with access to their marine jurisdictions. Proposals should not be pursued unless the relevant marine jurisdictions can be accessed.

**CONSENSUS STATEMENT #2**

Implementation of the **2050 Science Framework** must be driven by a **Common Proposal Process** powered by bottom-up submission of proposals, prepared by international teams of scientists, and developed through an open, transparent, and merit-based peer-review process.

**SUPPORTING OBSERVATIONS AND IDEAS**

- Current panels and Facility Boards are working well and should be used as our starting point to develop a new scientific advisory structure in support of the innovative 2050 Science Framework.
- All proposals should come through a common review process and the new scientific advisory structure should prioritize promoting important science endeavors and projects.
- We should develop mechanism(s) to evaluate expedition results 5 years post-expedition, with emphasis on broader community perspectives of the science advances achieved and how they may inform future work.
- There is a critical need to maintain a streamlined proposal development and review process so that proposal progress is efficient without compromising the integrity of the process.
- We also should develop recurring integrative workshops (on Flagship Initiatives especially) with a particular focus on bringing Early-Career Researchers into the program(s) and proposal writing (as the framework is new).
- Allow for multi-program proposals between scientific ocean drilling and respectively space agencies and ICDP.
- Keep expanding community input through the formal peer-review process.

**CONSENSUS STATEMENT #3**

Implementation of the **2050 Science Framework** will benefit from a **Portfolio of Drilling Platforms and Techniques** made available through continued international collaboration. Such a portfolio might include and prioritize access to globally ranging platform(s), ice-covered and shallow water regions, and deep drilling in challenging environments.

**SUPPORTING OBSERVATIONS AND IDEAS**

- Successful implementation of the 2050 Science Framework requires international collaboration in scientific ocean drilling, with multiple members and multiple platform providers, and drawing upon the national geophysical site characterization capabilities of member countries.
- An overarching “Forum” entity or analog is needed (1) as custodians of the Science Framework and (2) responsible for reviewing progress toward achieving its objectives and future revision through regular five-year assessments based on milestones, in particular, for Flagship Initiatives.
- Expanding scientific drilling membership increases diversity and inclusion, but we need to be more innovative, for example, through “teaser” partial memberships (no onboard scientists, but access to workshops, data, samples, experts, etc.) and temporary partnership schemes with non-member countries for expeditions relevant to a country or group of countries.
- Consideration should be given to obtaining philanthropic and corporate support via partnerships, alliances, and/or sponsorships.
- Incorporate and/or invite participants from non-member/prospective member countries to recurring science workshops to develop relationships that foster strong support for membership.

**CONSENSUS STATEMENT #4**

A ***Wide Range of Supporting Facilities*** are needed to implement the ***2050 Science Framework***. These include expanded core repositories, a distributed scientific ocean drilling cyber-infrastructure based on FAIR principles, the facilities to conduct downhole logging and installing borehole observatories, and the national geophysical site characterization capabilities of member countries.

**SUPPORTING OBSERVATIONS AND IDEAS**

- At least one globally ranging drillship or platform is required that operates >10 months per year.
- Also needed are access to supporting ice breakers for high latitude work, platforms for shallow-water drilling, geotechnical regional vessels, and deep drilling capability.
- We need online big data cyberinfrastructure to support our framework science.
- We also need to incorporate meaningful public relations, broader impacts, outreach, and communication.
- Modernized observatories and monitoring technology are other requirements for success.
- Core and data repositories need to be able to store and maintain more than 75 years of core material and data.
- Enhanced site characterization capabilities in support of more than 25 years of future scientific ocean drilling.

**CONSENSUS STATEMENT #5**

The *Enabling Elements* (p.98-117) are integral to the *2050 Science Framework* and would benefit from coordinated planning and support to ensure we achieve our mission and vision.

**SUPPORTING OBSERVATIONS AND IDEAS**

- Use Expert Advisory Groups that advise the proponents, the scientific advisory structure, the Forum, and Facility Boards on proposal development, implementation, and outcomes.
- Use Science Ambassadors and Focus Groups to facilitate collaboration between the ocean drilling community and allied programs and operating through Forum.
- In particular, establish Expert Advisory Groups for Big Data, Broader Impact and Outreach, Technology, Logging, Biosphere, Antarctica, etc. with experts from inside/outside the drilling community to provide feedback from proposal writing through implementation of expeditions.
- Add Enabling Elements watchdogs to SEP process.
- Add Enabling Elements to proposal cover sheet.
- Develop a common format database with FAIR data allowing post-expedition data analysis, virtual expeditions and synthesis projects.
- Have broader impact and communication efforts associated with every expedition.
- Expand working with allied programs bringing together broader science communities (e.g. SZ4D for subduction, C-DEBI for biosphere, or InterRidge for Ocean Sciences).

**CONSENSUS STATEMENT #6**

**International Workshops** and **Sustained Planning Efforts** will be particularly important in addressing the **Flagship Initiatives** (p.10-11 and p.72-97) and a critical component for scoping, feasibility assessment, developing milestones, and reviewing progress.

**SUPPORTING OBSERVATIONS AND IDEAS**

- Each **Flagship Initiative** can accommodate multiple **Flagship Initiative Strategy Proposals (FISP)** that are adaptable over multi-decadal implementation periods. Implementation strategies should be developed through a bottom-up proposal process.
- Successful implementation of the Flagship Initiatives requires strong coordination among proponents, funding agencies, and platform providers.
- FISPs should be built on the concept of overarching mission drilling proposals. This will have a significant impact on the scientific advisory structure and functioning as scoping for specific Flagship Initiative strategies needs to be integral to the proposal development.
- The differing nature of the five Flagship Initiatives will require different strategies and progress may occur via multiple FISPs and/or incrementally via individual proposals.
- FISP proposals should be public to allow the wider community to contribute expedition proposals.
- Flagship Initiatives are not more important than proposals addressing one or more Strategic Objectives.

### **CONSENSUS STATEMENT #7**

To ensure continuity through the end of the current program and any transition period, it is critical that the scientific ocean drilling community starts to move forward in developing plans to implement the **2050 Science Framework**. International community workshops in support of **Flagship Initiatives** and **Enabling Elements** should be planned as early as possible.

### **SUPPORTING OBSERVATIONS AND IDEAS**

- New guidelines are needed in support of community proposal submission; however, we acknowledge that both SEP and SSO need time to change guidelines, forms, and/or processes.
- Community members are strongly encouraged to submit proposals in response to the JRFB Request for Information before June 10, 2021 (<https://forms.gle/nT9yL4z6wdvoa7Rh8>) with ideas for new exciting proposals in support of the 2050 Science Framework.
- International participation in workshops will be critically important in implementing the new 2050 Science Framework.

**CONSENSUS STATEMENT #8**

The **2050 Science Framework** should be reviewed and evaluated every five years by the international community under the auspices of a **Central Forum** which also functions as the custodian of the framework.

**SUPPORTING OBSERVATIONS AND IDEAS**

- As science advances the 2050 Science Framework must keep pace and be au courant.
- Review and evaluation should involve relevant experts both within and beyond the international scientific ocean drilling community.