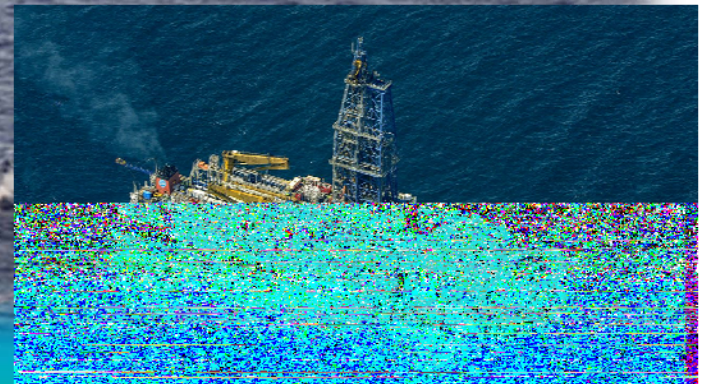




International Ocean  
Discovery Program

# International Ocean Discovery Program: Current Structure, Proposals in the System, Future Directions for MSROC planning purposes

Sean Gulick, Co-Chair  
Science Evaluation Panel

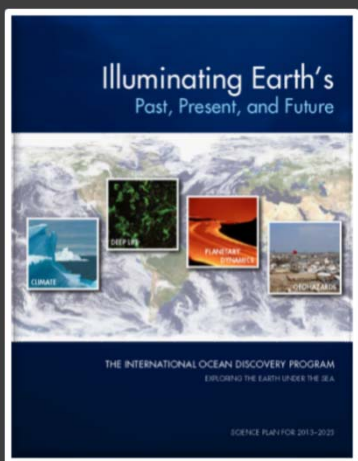


# 1. New Structure of IODP #2

- Each facility is overseen by a separate Facility Board
- Co-mingled funds to operate all three IODP facilities abandoned in favor for independent facility funding
- The JOIDES Resolution Facility Board (JRFB) provides operational and management oversight of the JOIDES Resolution Science Operator (JRSO) and the Science Support Office (SSO) as part of the IODP

# 1. New Structure of IODP #2

- Going from 9 panels (OTF, SASEC, SPC, PEP, SCP, STP, EDP, SIPCOM, EPSP) to 3 panels (JRFB, SEP, EPSP)
- SEP and EPSP are advisory panels to JRFB
- SEP now merges both science and site characterization
  
- At least one global circum-navigation (2013-2023)
- Charting out the JR track up to 5 years in advance
  
- Nominally JR- 8 mo/yr operations, MSP- 1 per year, Chikyu- variable
- Schedules are determined at FB Meetings about ~2 years before sailing (this May JRFB scheduled FY19)



Science Community

Support Office and Site Survey Data Bank

Science Evaluation Panel (SEP)

Environmental Protection and Safety Panel (EPSP)

JR partners  
ECORD  
Australia  
Brazil  
China  
India  
Korea

CPP

INDUSTRY

JR Facility Board

NSF

ECORD Facility Board

ECORD

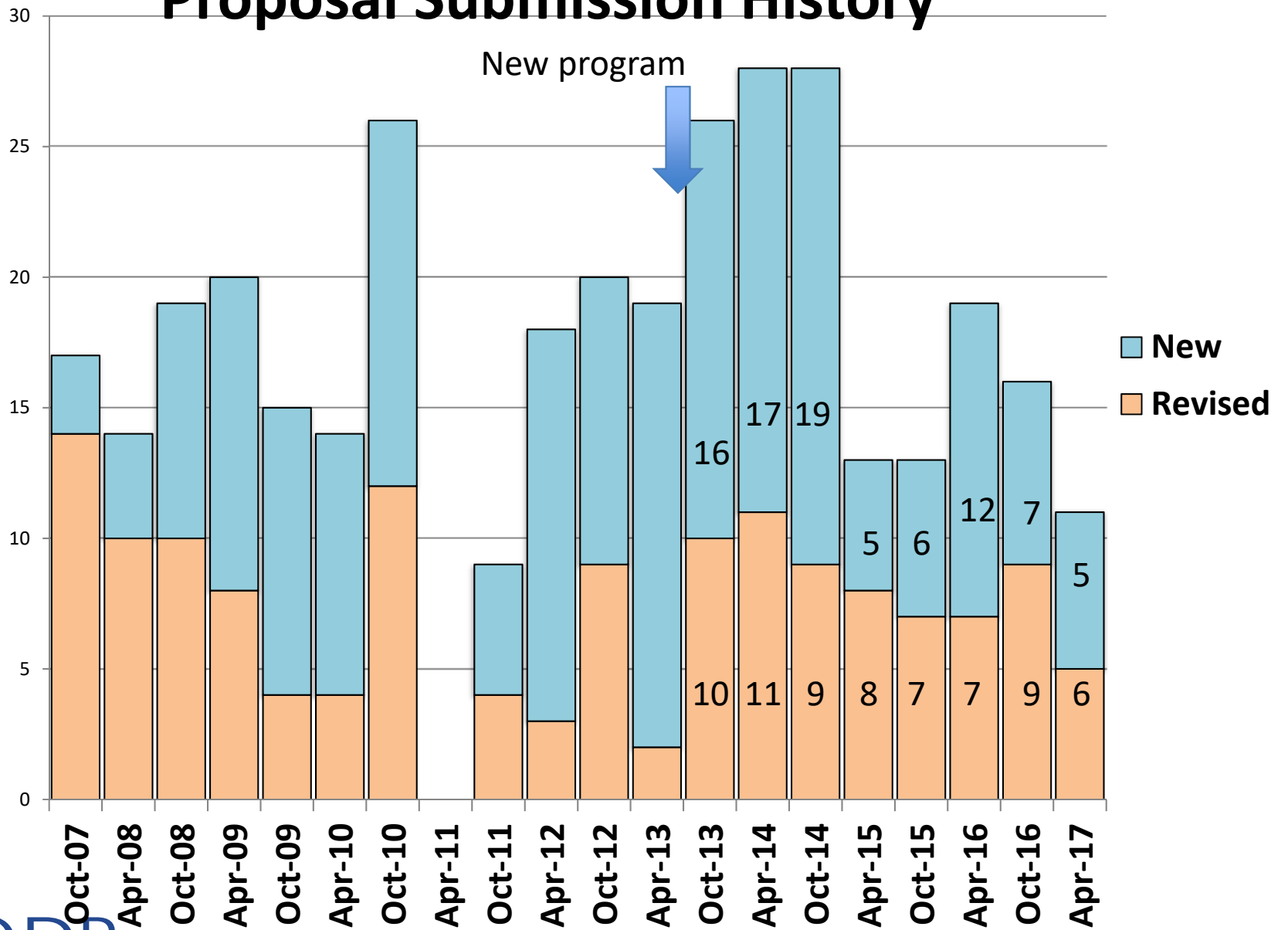
Chikyu IODP Board

MEXT

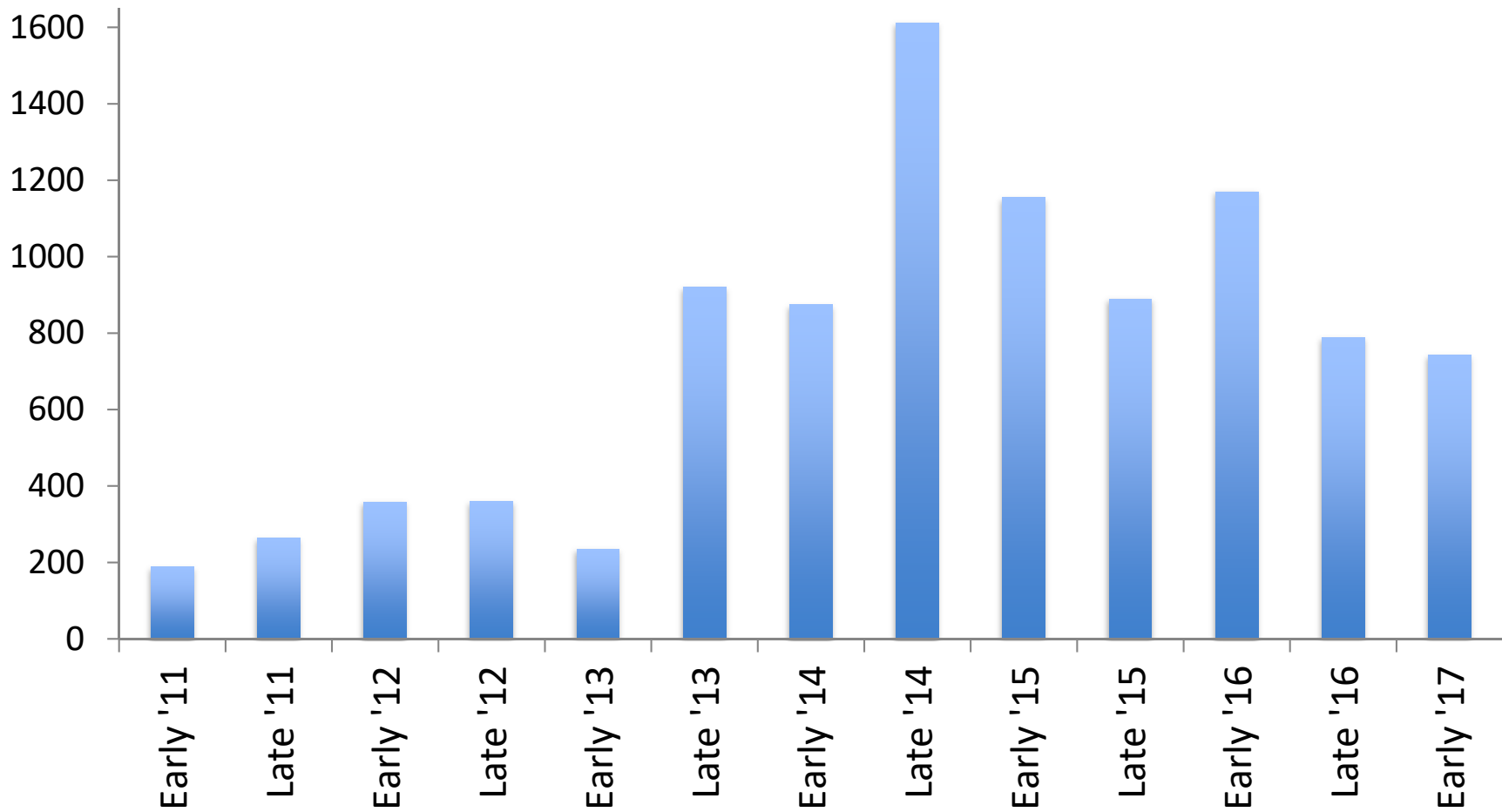
Chikyu partners  
ECORD



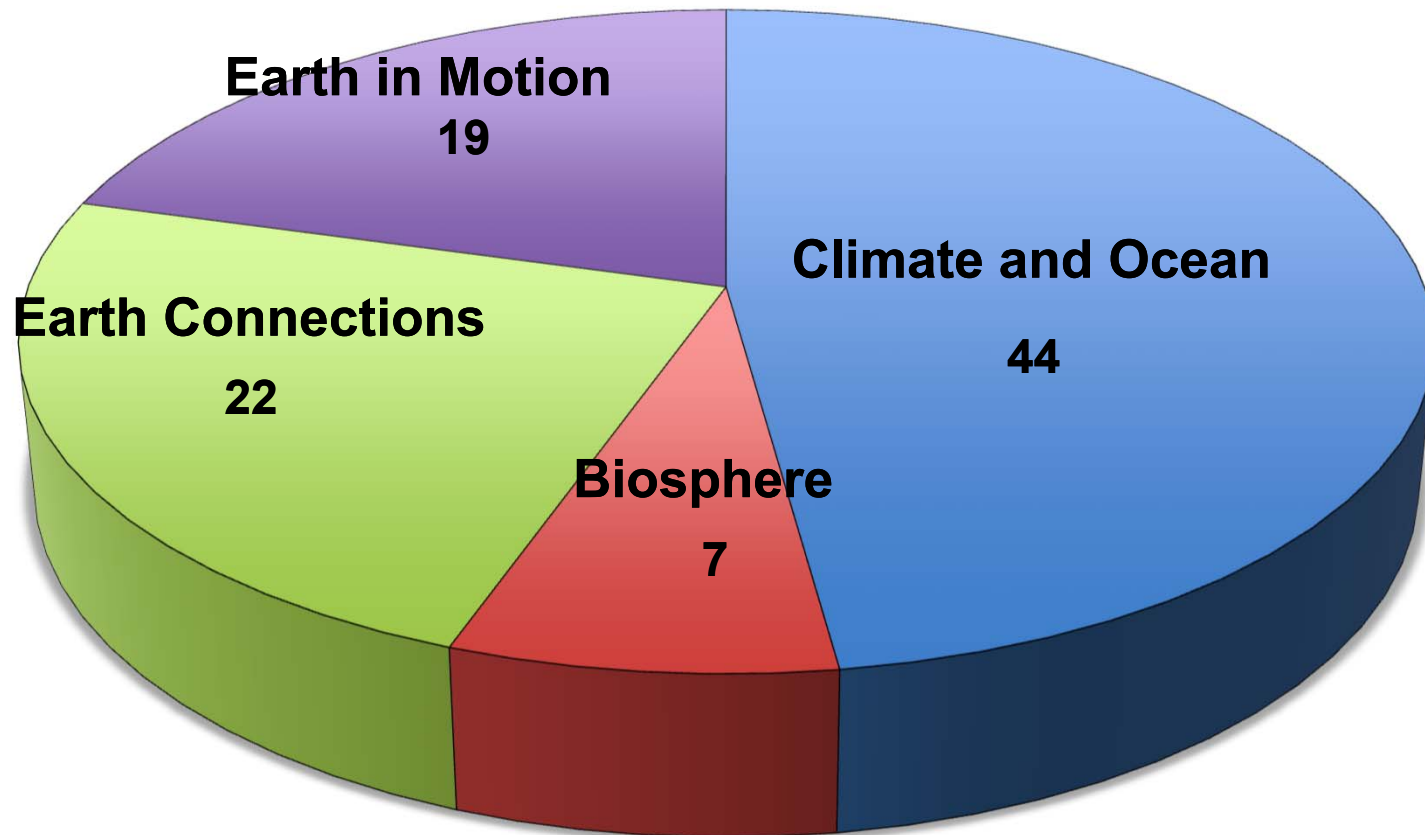
# Proposal Submission History



# File Submissions to SSDB



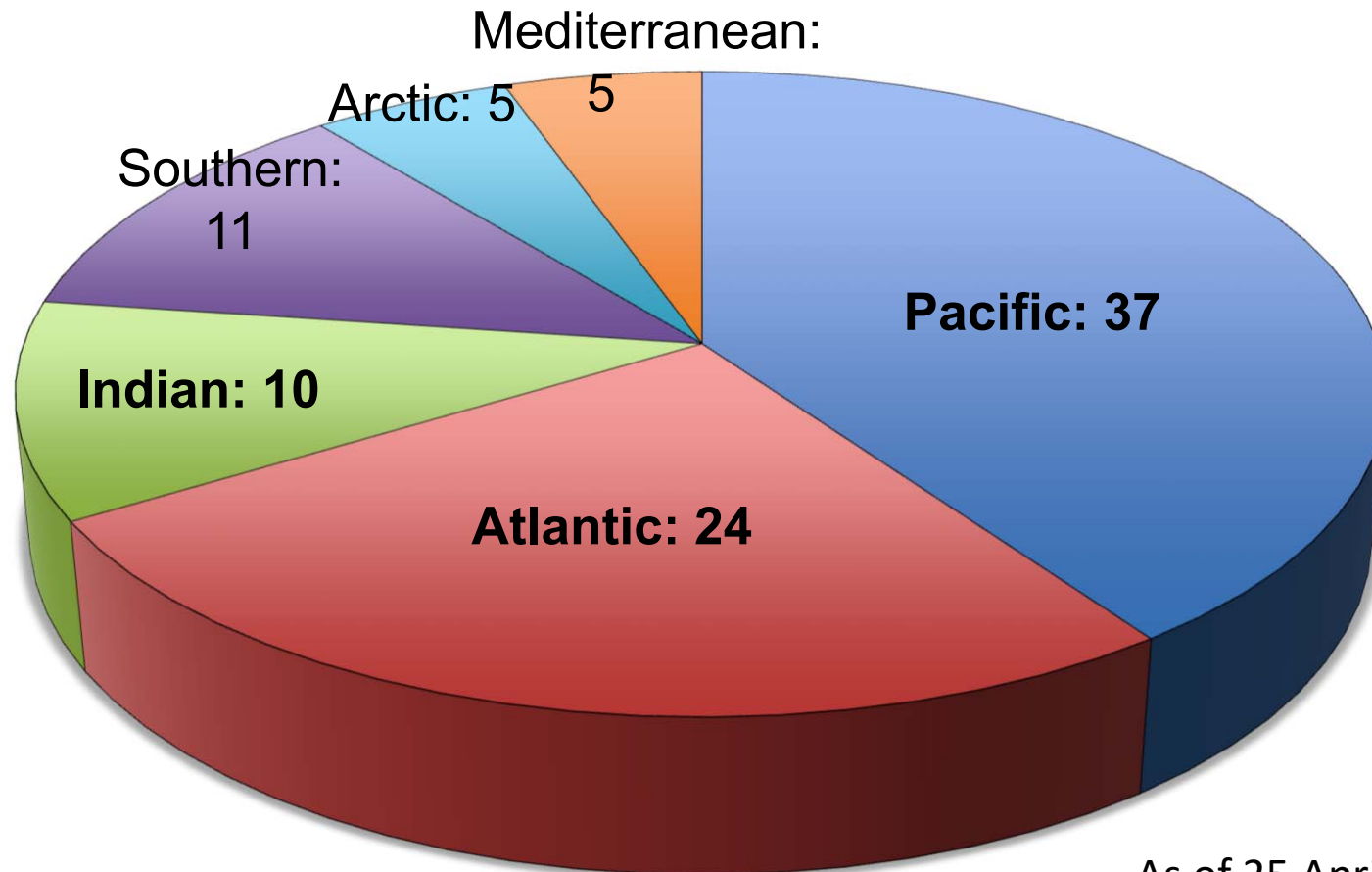
# Active proposals: 92 by science plan themes



As of 25 April 2017



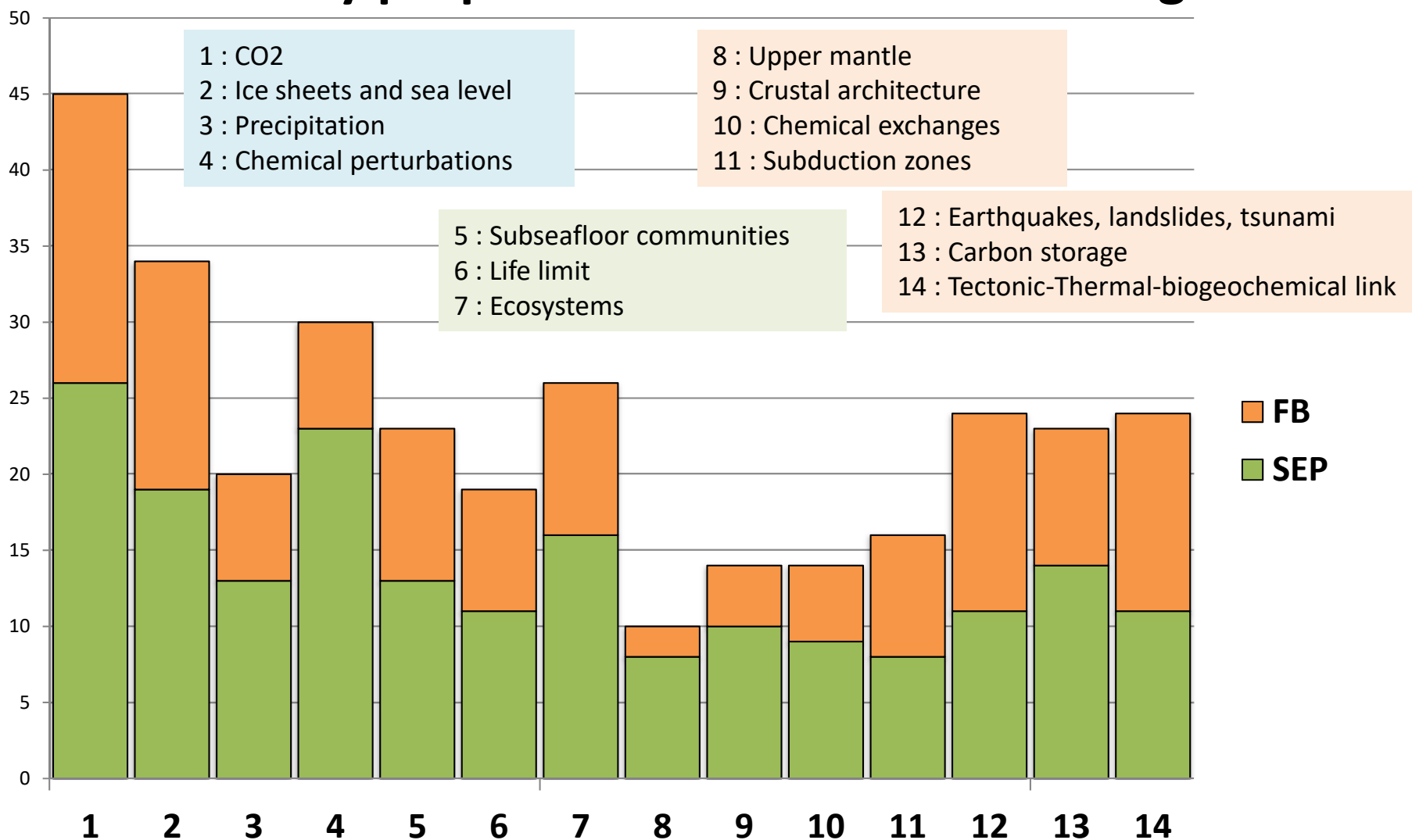
# Active proposal status: 92 by target ocean



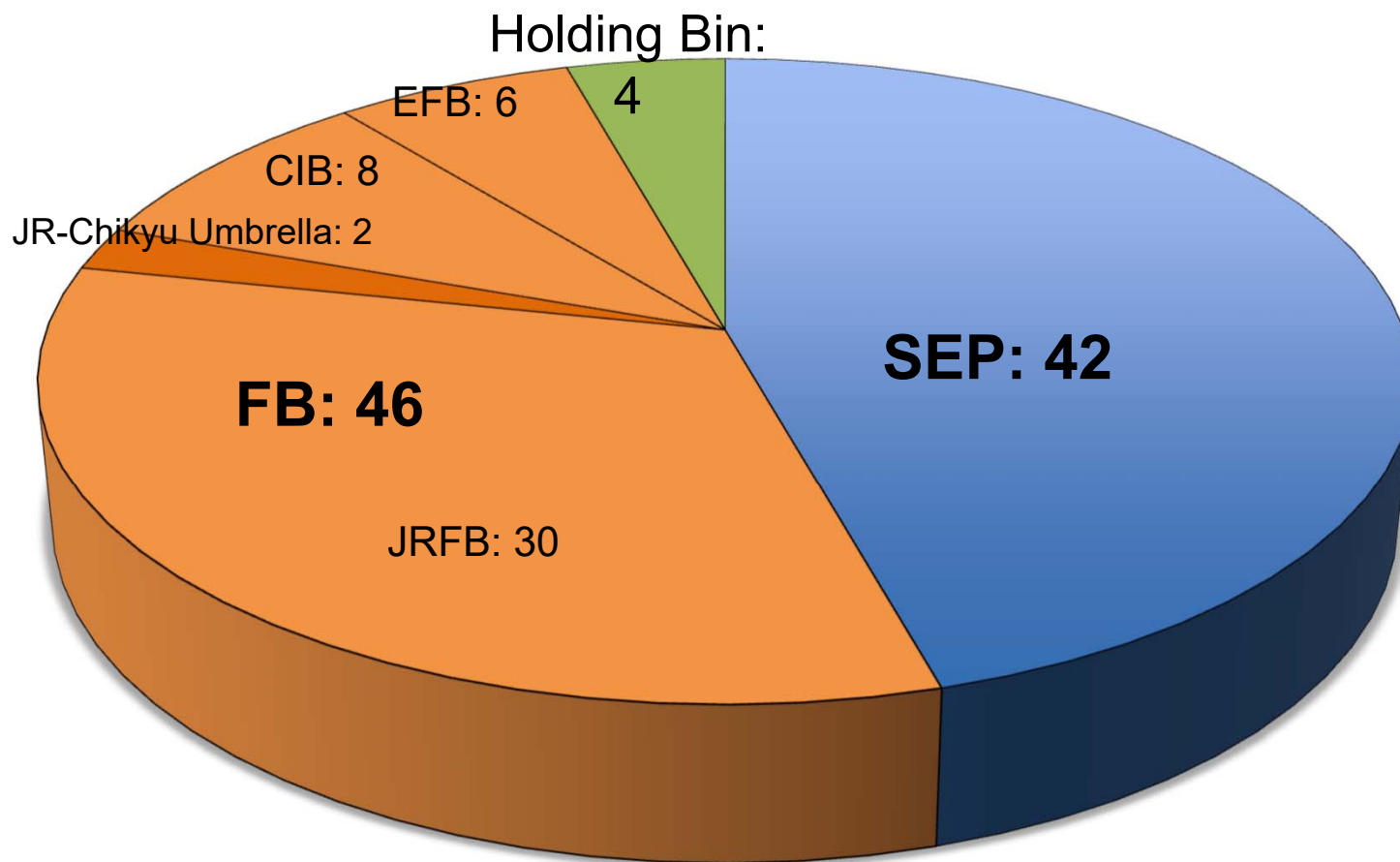
As of 25 April 2017



# How many proposals address which challenges?

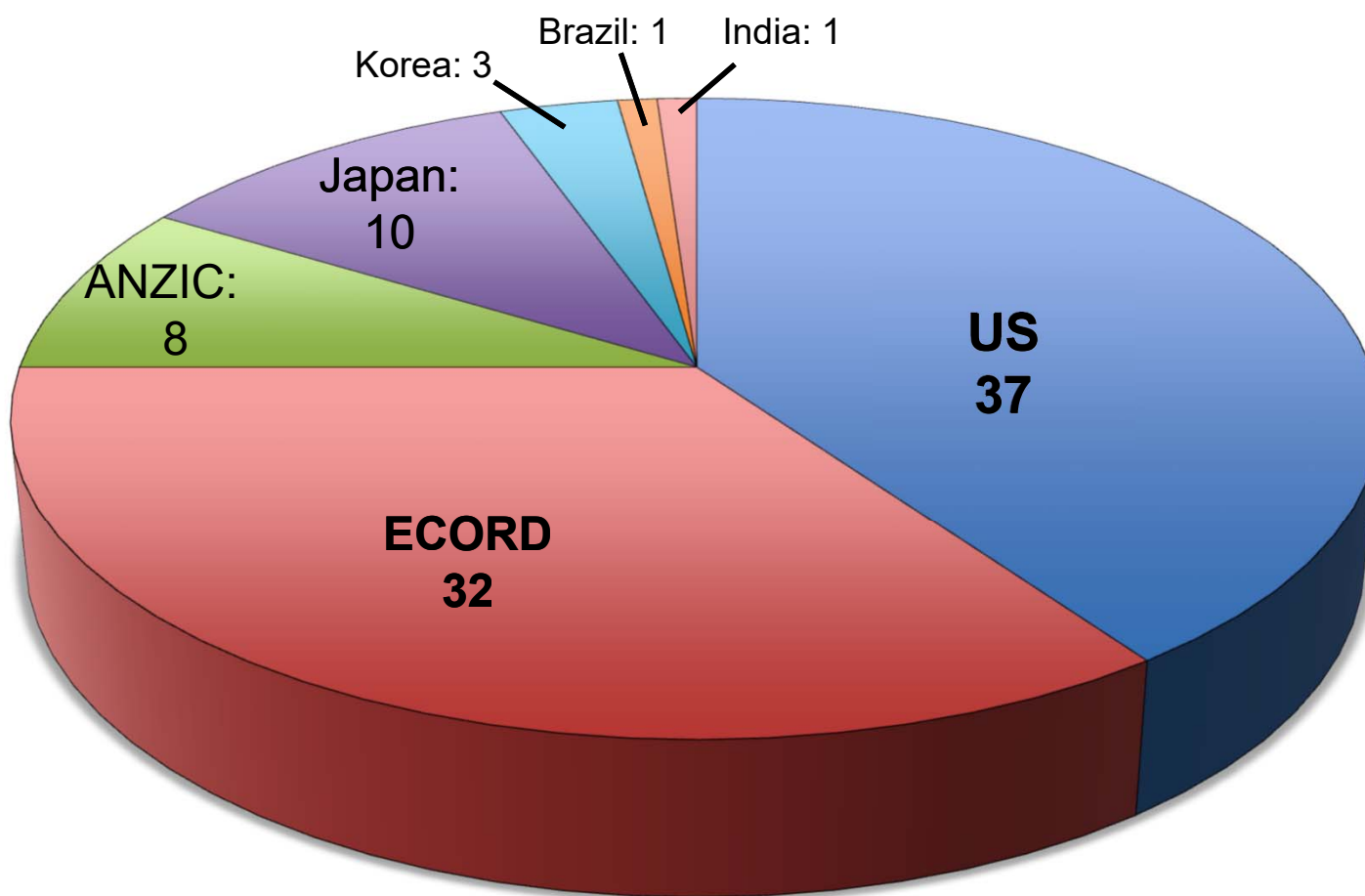


# Active proposal status:92 by review stage



As of 25 April 2017

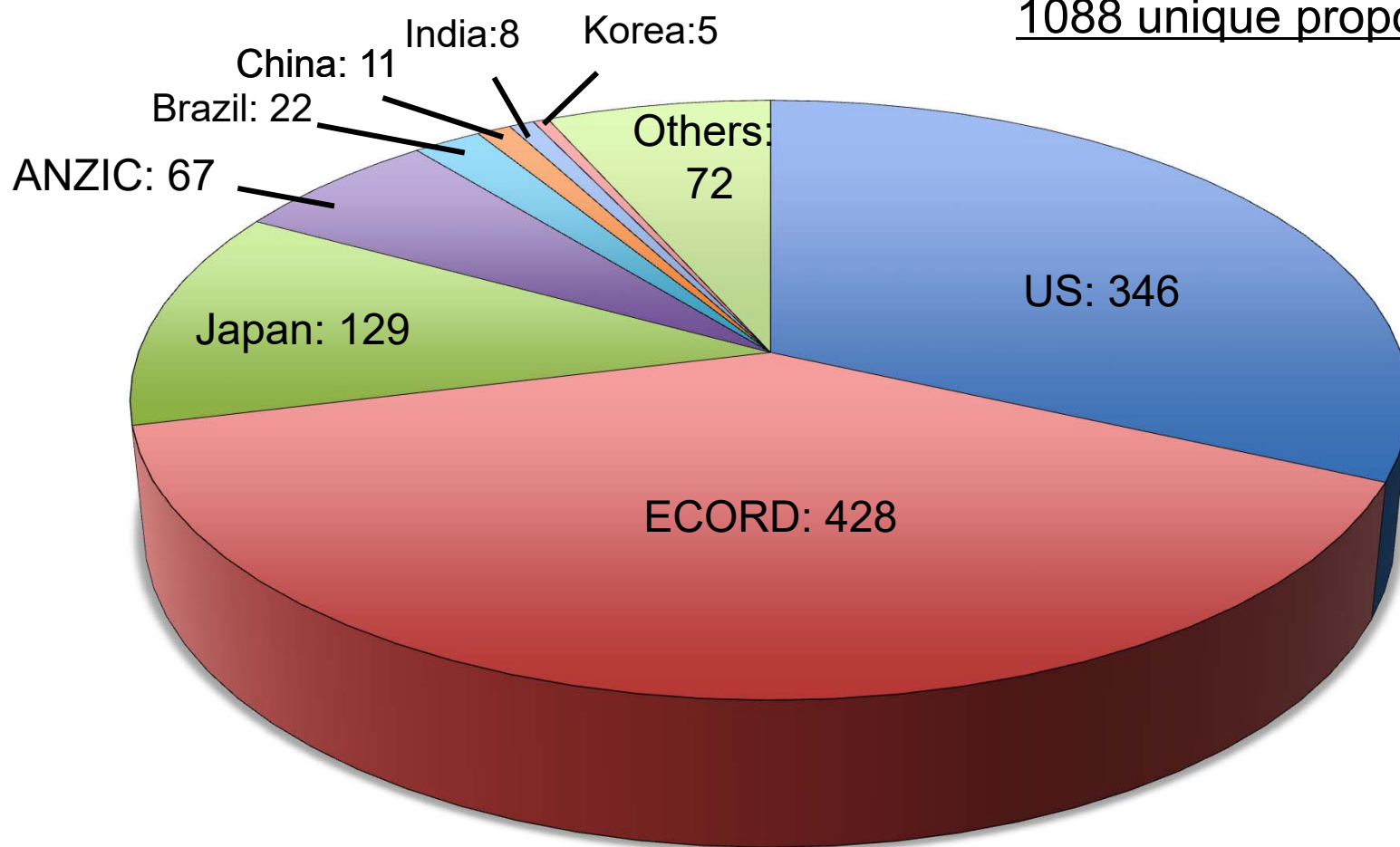
## Active proposals: 92 by lead proponent's member affiliation



As of 25 April 2017

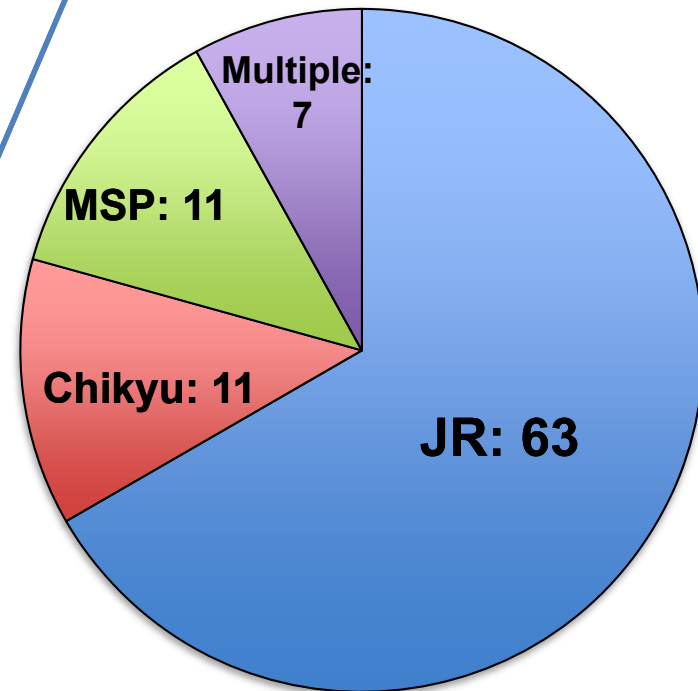
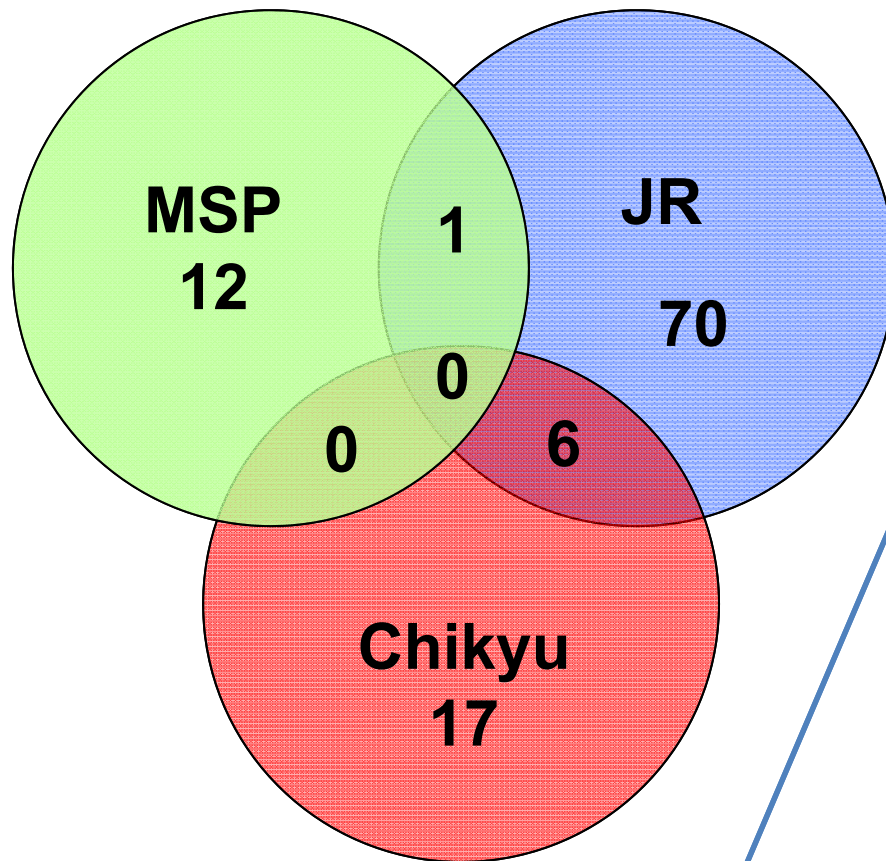
# Active proponent distribution

1088 unique proponents



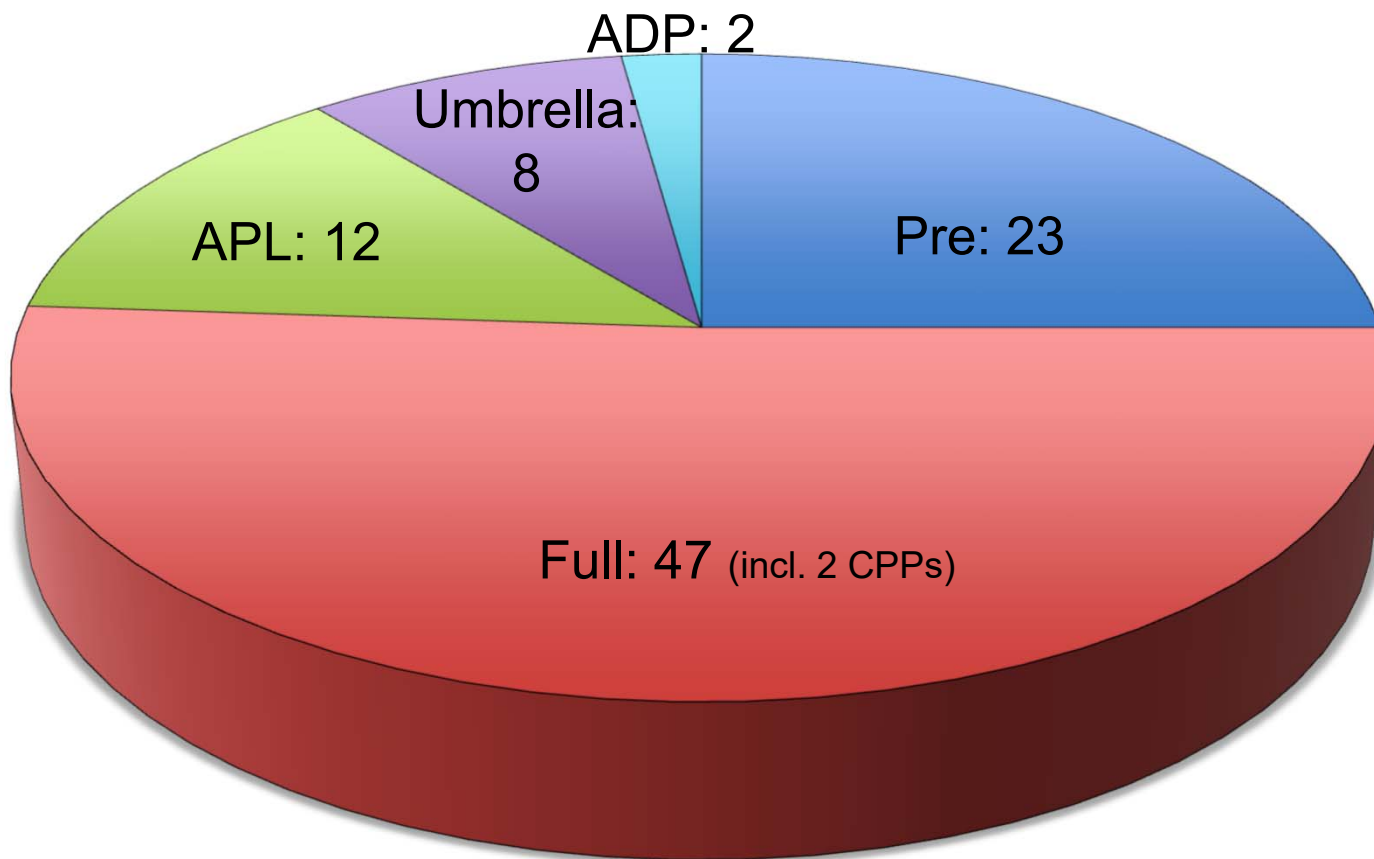
As of 25 April 2017

# Drilling Platforms for 92 Active Proposals



As of 25 April 2017

# Active proposals: 92 by proposal category



As of 25 April 2017

Science Support Office (SSO)

External  
Reviewers

EPSP

JR  
Facilities  
Board

JRSO

Proponents (YOU)

Science  
Evaluation  
Panel (SEP)

MSP  
Facilities  
Board

ESO

Chikyu  
Facilities  
Board

CDEX



Science Support Office (SSO)

External  
Reviewers

EPSP

JR  
Facilities  
Board

JRSO

MSP  
Facilities  
Board

ESO

Chikyu  
Facilities  
Board

CDEX

Proponents (YOU)

Science  
Evaluation  
Panel (SEP)

999 Pre

**Two deadlines for proposals:**

**~ April 1 & ~ October 1**

**Submit site survey data within 1 month**

**Proposal assigned a number (e.g., 999-Pre)**



# SEP Review Procedures:

(general evaluation criteria for IODP proposals)

- Are the scientific questions/hypotheses being addressed exciting and of sufficiently wide interest to justify the requested resources?
  - *SEP deactivates the pre-proposal or full proposal if there isn't a strong science question/hypothesis.*
  - *SEP aims to give a clear signal to the proponents to rethink their science question/hypothesis, if needed.*
- To what degree does the integrated experimental design of site characterization, drilling, sampling, measurements, and downhole experiments constitute a compelling and feasible scientific proposal?
  - *SEP deactivate the pre-proposal or full proposal if there isn't a strong, strategic, drilling plan, including alternate sites, to address the science question/hypothesis.*
  - *SEP aims to give a clear signal to the proponents about how to improve the drilling plan, if needed. In such a case, SEP encourages proponents to come back with a new pre-proposal or full proposal (but only if there is a strong science question/hypothesis).*
- Will the proposal significantly advance one or more goals of the Science Plan?
- Would the proposal engage new communities or other science programs into the drilling program?

Science Support Office (SSO)

External  
Reviewers

EPSP

JR  
Facilities  
Board

JRSO

999 Pre-  
review

Proponents (YOU)

Science  
Evaluation  
Panel (SEP)

MSP  
Facilities  
Board

ESO

999 Pre

Chikyu  
Facilities  
Board

CDEX

**SEP typically meets in January and June**  
**SEP watchdogs are assigned to your proposal, SEP submits**  
**their review of 999-Pre**

Science Support Office (SSO)

External Reviewers

EPSP

JR Facilities Board

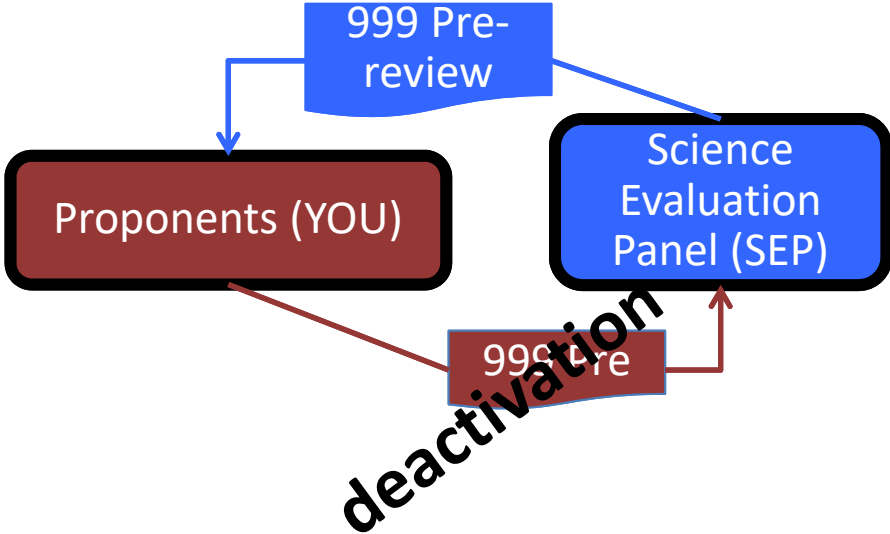
JRSO

MSP Facilities Board

ESO

Chikyu Facilities Board

CDEX



**Scenario 1: SEP deactivates your proposal**

Science Support Office (SSO)

External  
Reviewers

EPSP

JR  
Facilities  
Board

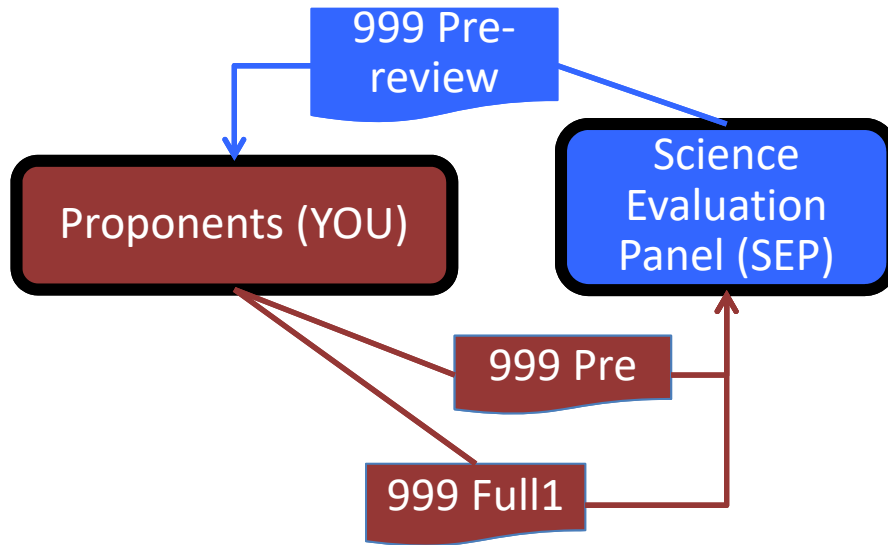
JRSO

MSP  
Facilities  
Board

ESO

Chikyu  
Facilities  
Board

CDEX



**Scenario 2: Using SEP reviews as guidance,  
you submit 999-Full1**



## Watchdog Preparation of Proposal Reviews



- **WD1** presents the science case of the proposal after consultation with the other assigned WDs
- **WD2** advises the WD1 on the science case, and WD2 writes the science part of the response letter to proponents (together with WD1)
- **WD3** presents the new site survey data after consultation with the other assigned WDs, unless there are no new data. If no data, then WD3 advises on data that are necessary.
- **WD4** advises the WD3 on the site survey data, and WD4 writes the site survey part of the response letter to proponents (together with WD3).
- **WD5** advises watchdogs 1-4 on the drilling plan, platform, technical issues and feasibility of the proposed program. WD5 writes a statement of these issues in the response letter

## What Makes a Full Proposal Excellent?

- Strong and compelling science questions/hypotheses of global importance
- Innovative with potential for success
- Responsive to the input from SEP

## What Will Cause a Full Proposal to be Declined?

- Science is incremental
- Science is one-sided (doesn't consider alternative hypotheses)
- Science addresses a regional question not of global significance
- Proponents are unresponsive to review comments
- Site survey data are insufficient to underpin the science or conduct operations safely



# What Science Evaluation Panel and Environmental Protection and Safety Panel Watch For...

- Is this the right place to drill for the science?
- Are there any problems with the site that will affect recovery?
- Are there any hazards at the site?
- What can we predict about the lithology from the images and does that affect possible success?
- Have they adequately determined velocity in order to estimate target depths and thus drilling times?

## Objective: to develop the data package so that the proposal may be forwarded to the Facility Board (FB)

Forward  
to FB



1

Data reviewed by SEP are sufficient to support the scientific objectives of the drilling effort and there are no further concerns

2

Data reviewed by SEP are sufficient to support the scientific objectives of the drilling effort, but minor concerns require follow-up by proponents (specify in text)

Holding Bin,  
Revise or  
Deactivate



3

Data reviewed by SEP are insufficient to support the drilling effort, but other data are believed to exist; and/or data are not annotated or organized sufficiently to fully review, or there are scientific concerns

4

Data reviewed by SEP are insufficient to support the drilling effort, and additional data are not believed to exist

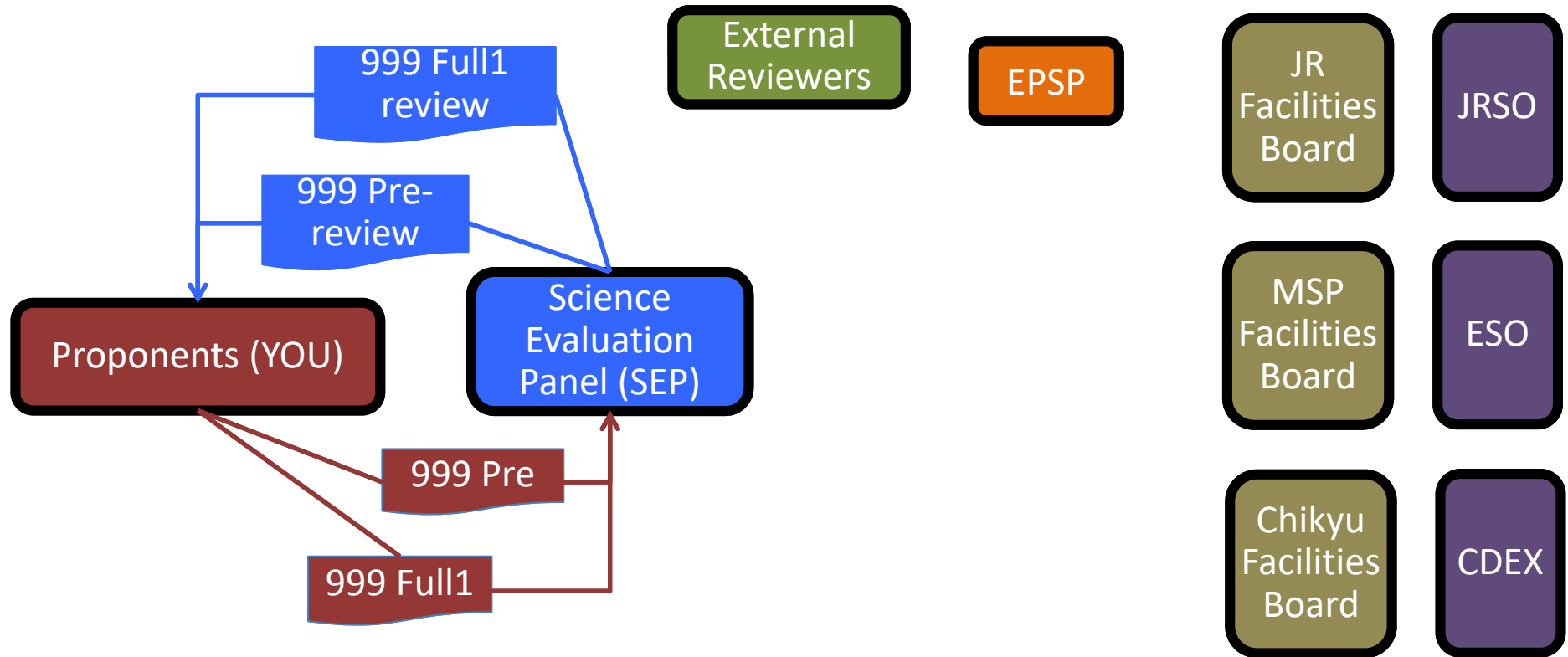
5

No data have been reviewed by SEP

“Insufficient” indicates that the data package is not sufficient to convince the SEP that the scientific objectives can be addressed. For example: 1) the data package may lack items that are fundamental to determining the correct site location or target depth; 2) the data may be of insufficient resolution to demonstrate the existence of targeted strata; 3) the data may not demonstrate unequivocally that the proposed locations are correct (e.g. sites are not plotted correctly or mismatches exist between navigation files and proposed locations); 4) site locations are deemed to be inadequate for addressing the objectives (e.g. missing critical sections, misinterpretations, science or safety concerns, etc.).

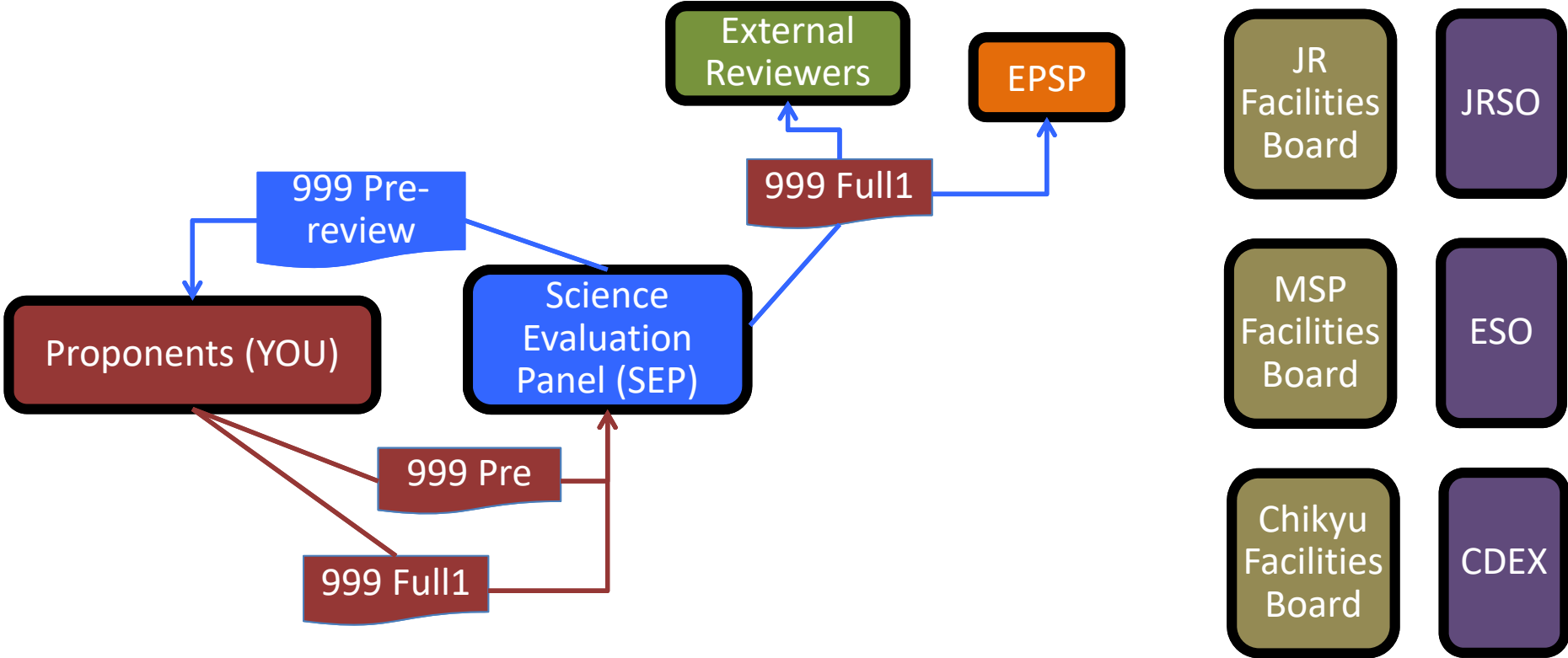
“Minor concerns” may include missing items or questions that do not affect the assessment that drilling is warranted at proposed sites, meaning the objectives can be met based on existing data despite the concerns. Examples include: 1) missing image files (e.g. bathymetry); 2) minor issues with velocity that may slightly affect the proposed depth of penetration; 3) minor navigation issues. These can be addressed while proposal resides at the FB.

Science Support Office (SSO)



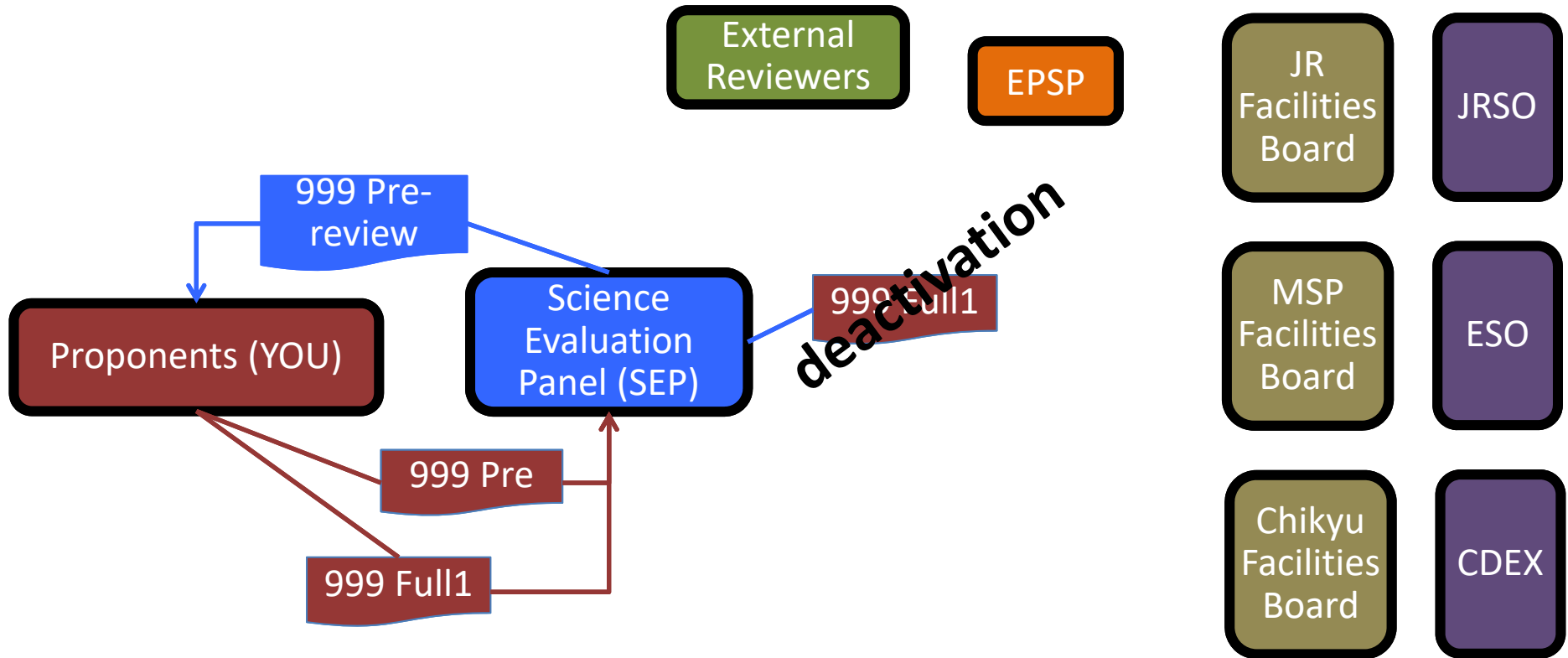
**Scenario 1: SEP reviews 999-Full1, and asks for revision**

Science Support Office (SSO)



**Scenario 2: SEP sends 999-Full1 out for external review and to EPSP**

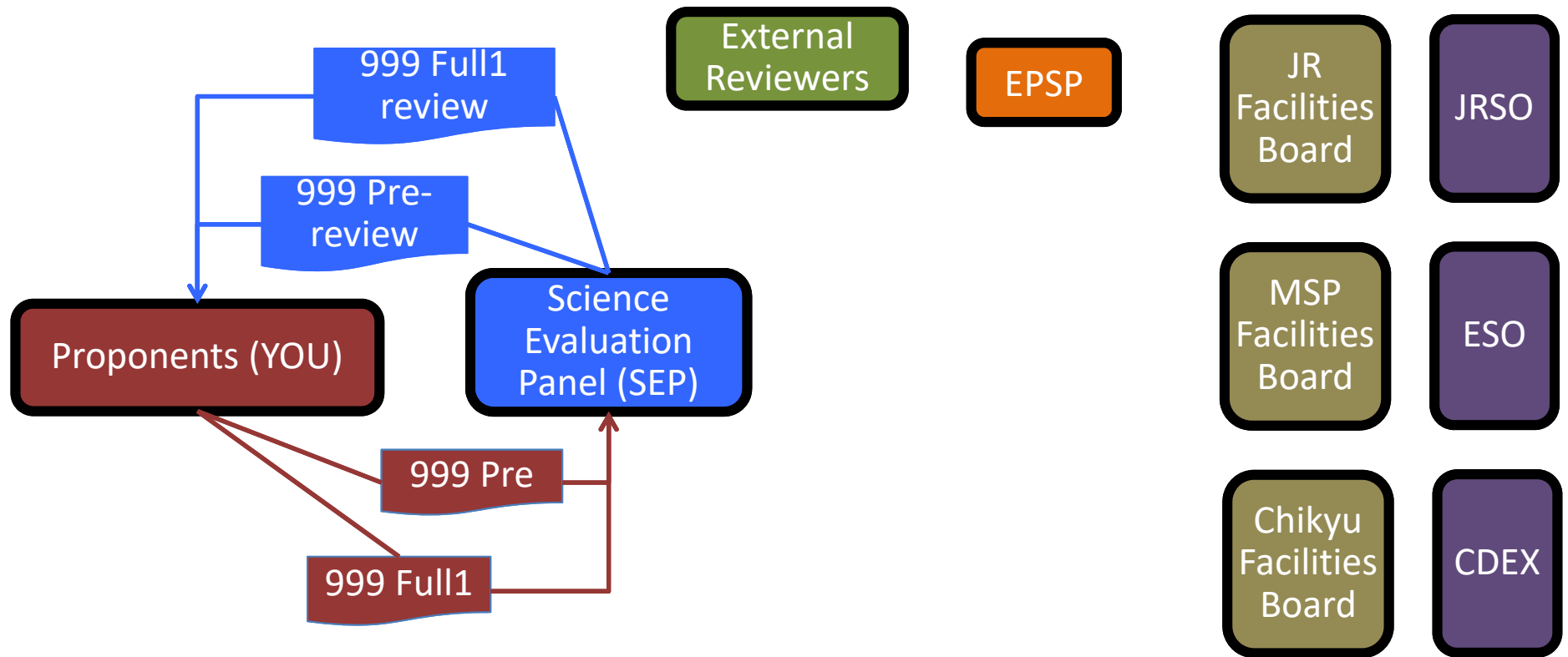
Science Support Office (SSO)



**Scenario 3: SEP deactivates 999-Full1**

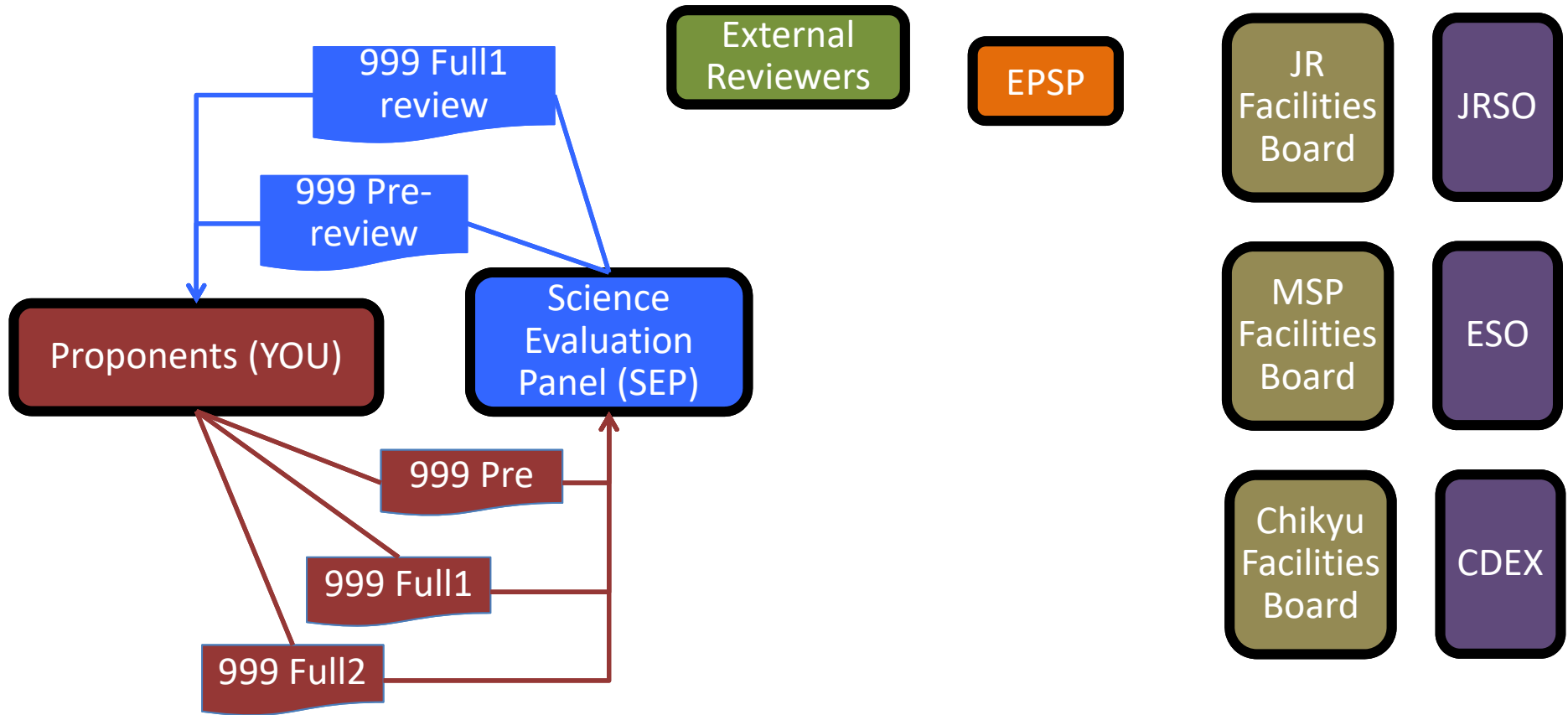


Science Support Office (SSO)



**Let's assume Scenario 1: SEP reviews 999-Full1, and asks for revision**

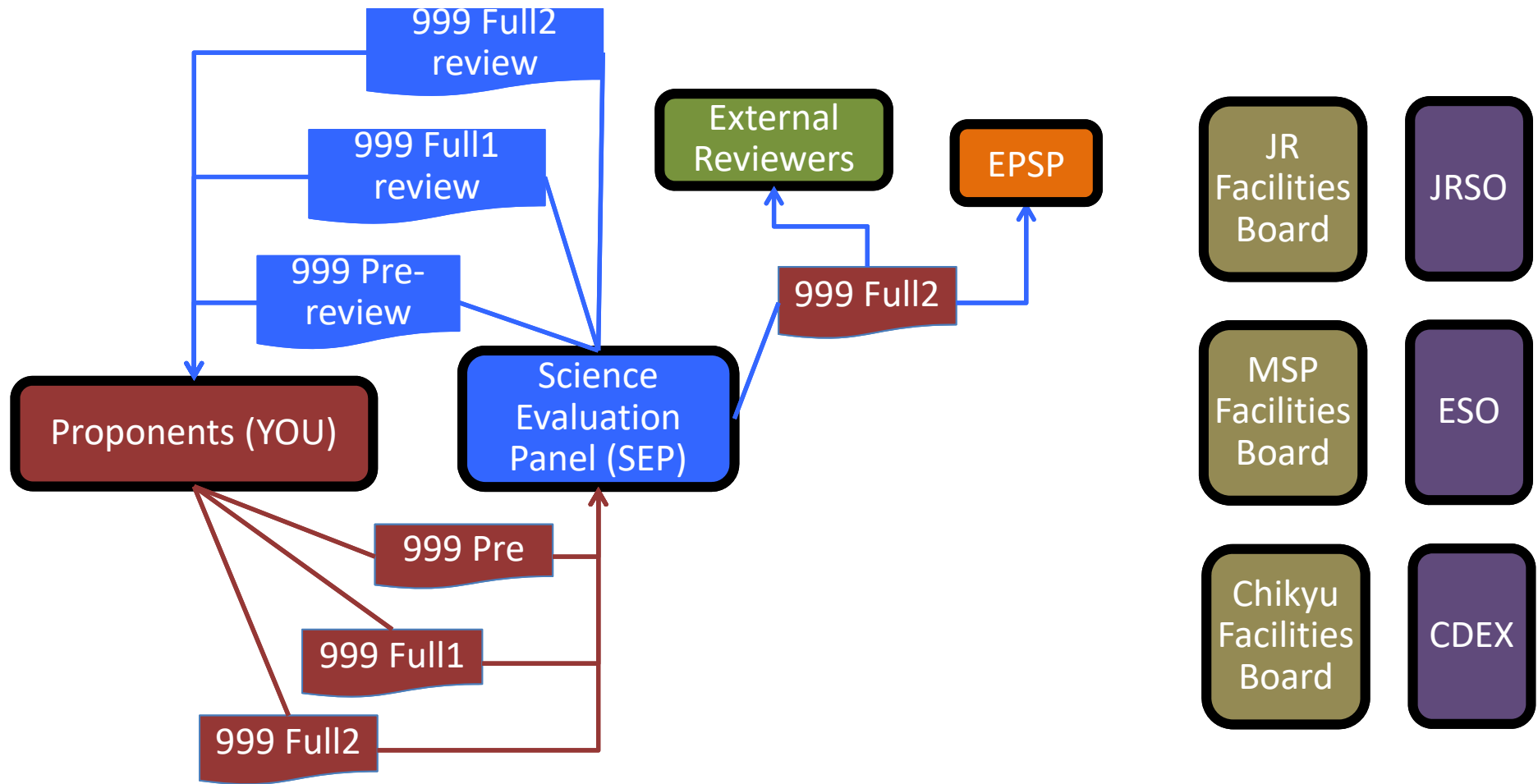
Science Support Office (SSO)



Using SEP reviews as guidance, you submit 999-Full2



Science Support Office (SSO)



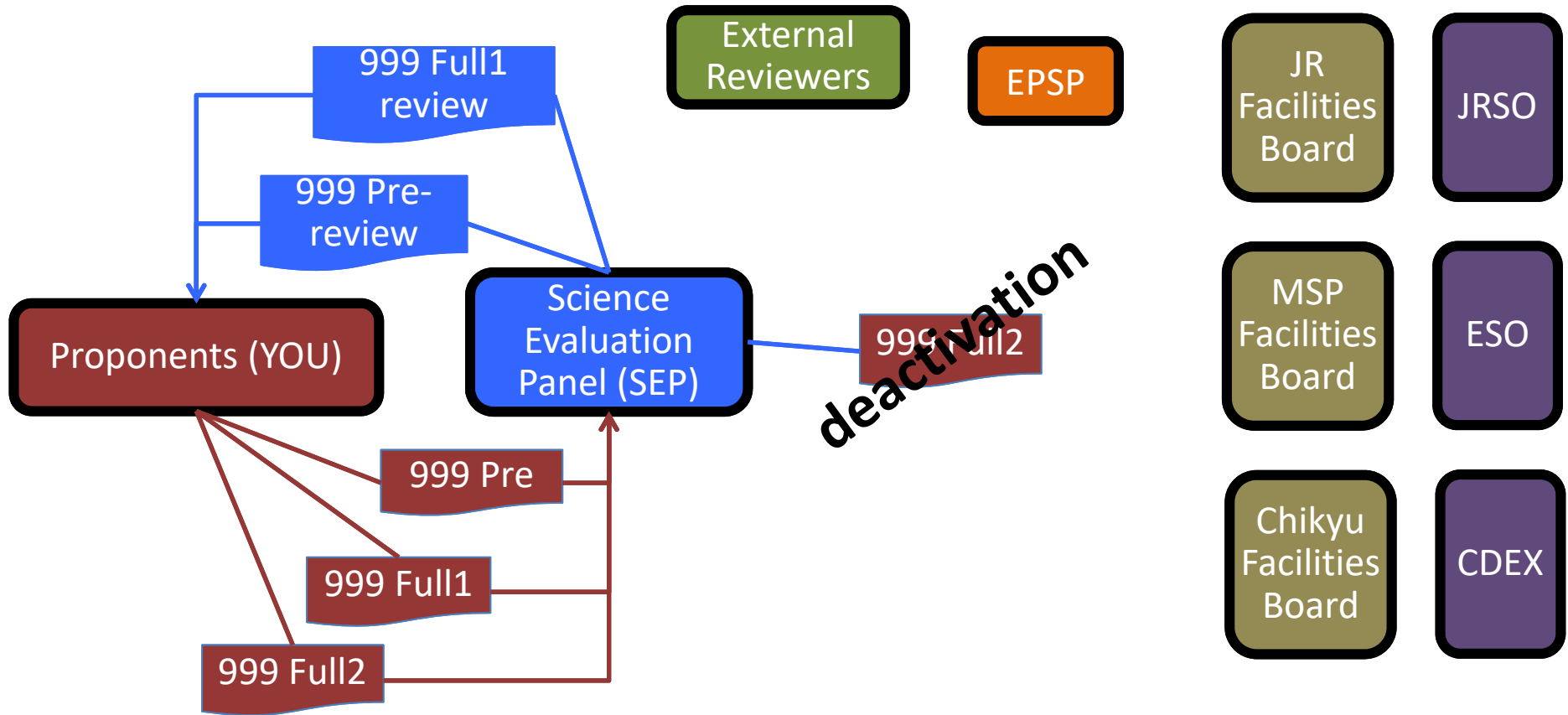
**Scenario 1: SEP sends to external review & to EPSP, and may send you a review to address with an addendum**

# Environmental Protection and Safety Panel

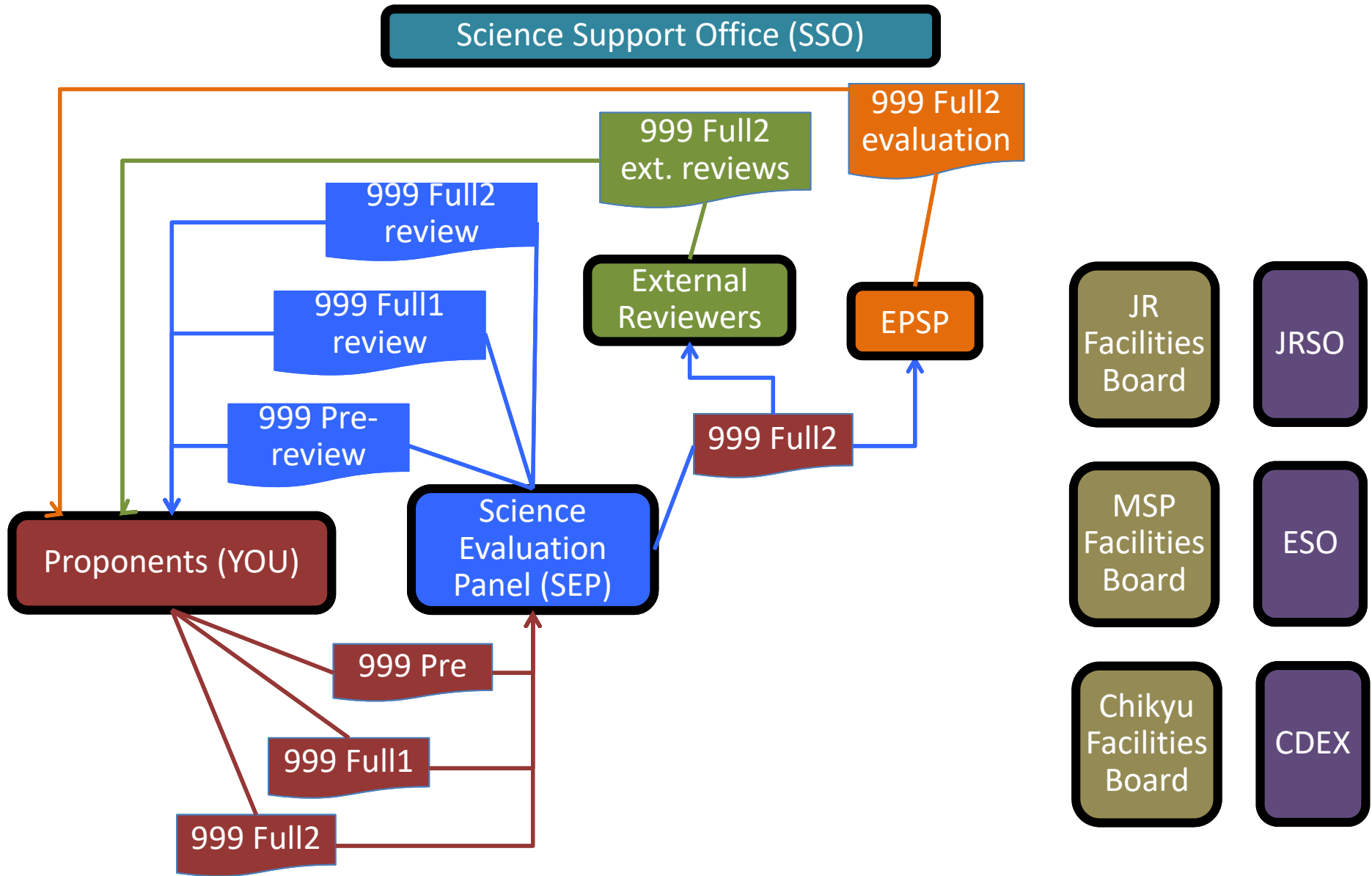
- Examines every site you propose for concerns over environmental effects
- Examines every site you propose for concerns over hydrocarbons and overpressure
- JOIDES Resolution and most Mission Specific Platforms do not have a blow-out preventer
- EPSP has VETO rights



Science Support Office (SSO)

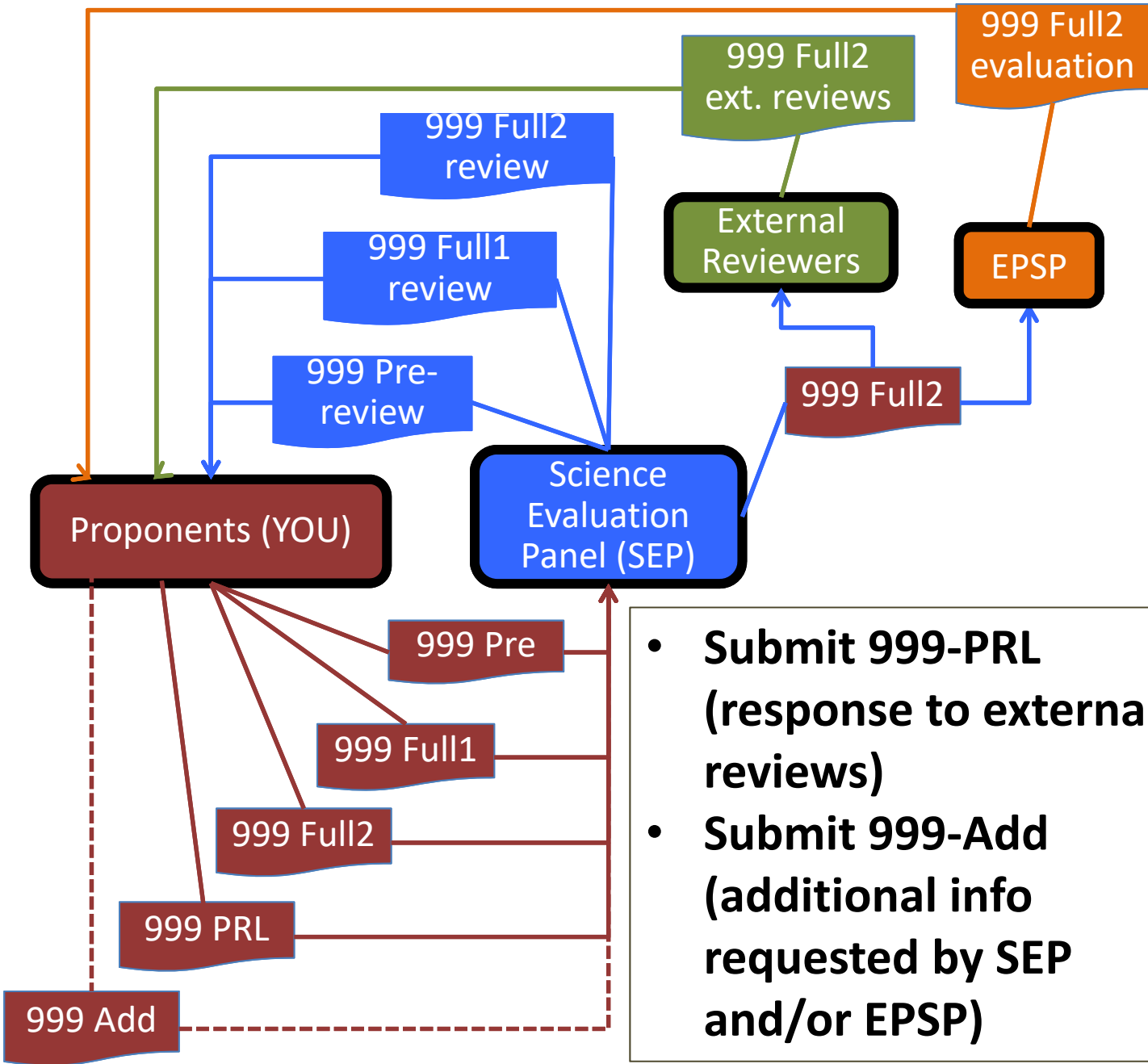


**Scenario 2: SEP deactivates your proposal**



**You receive External Reviews and EPSP evaluation**

Science Support Office (SSO)



JR Facilities Board

JRSO

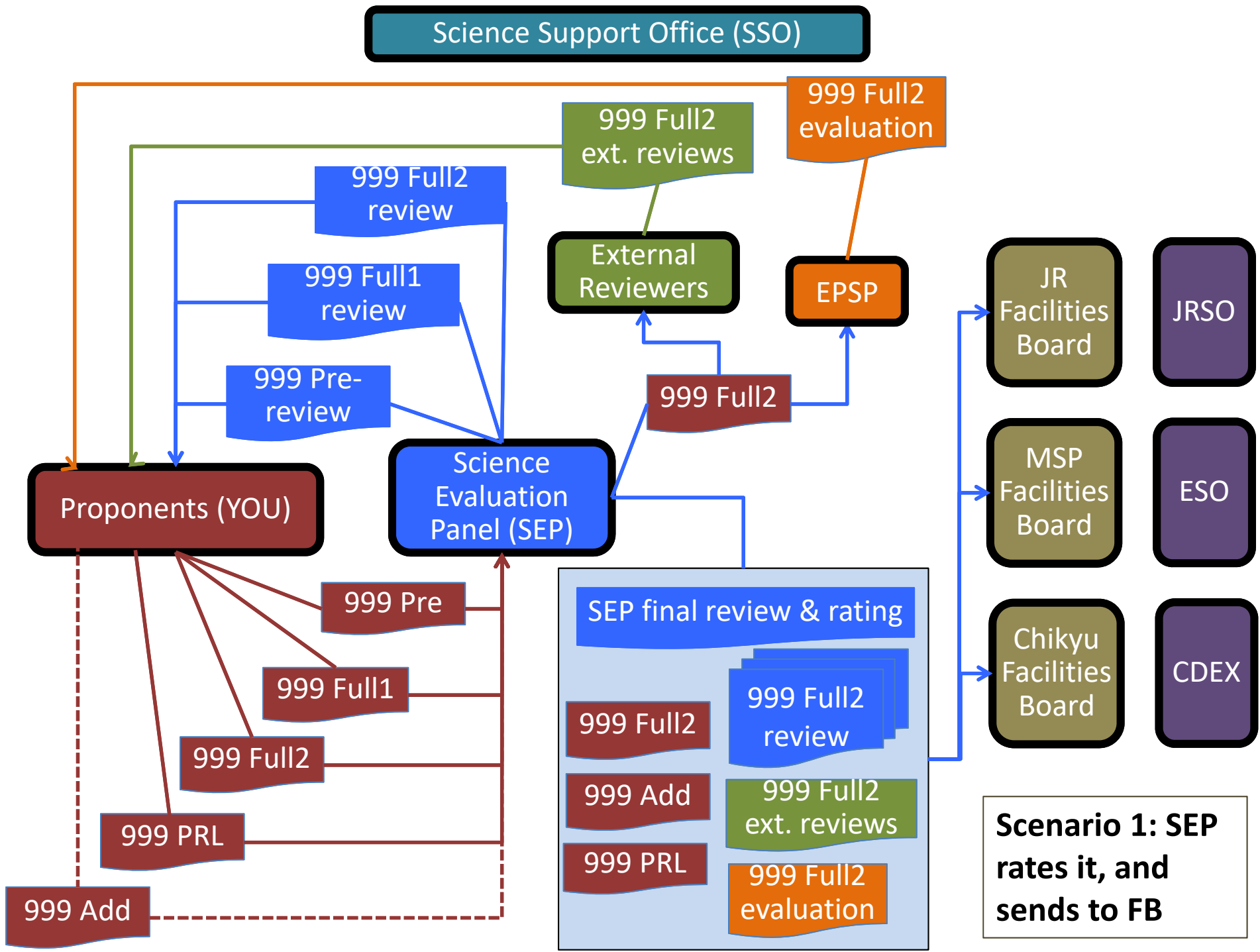
MSP Facilities Board

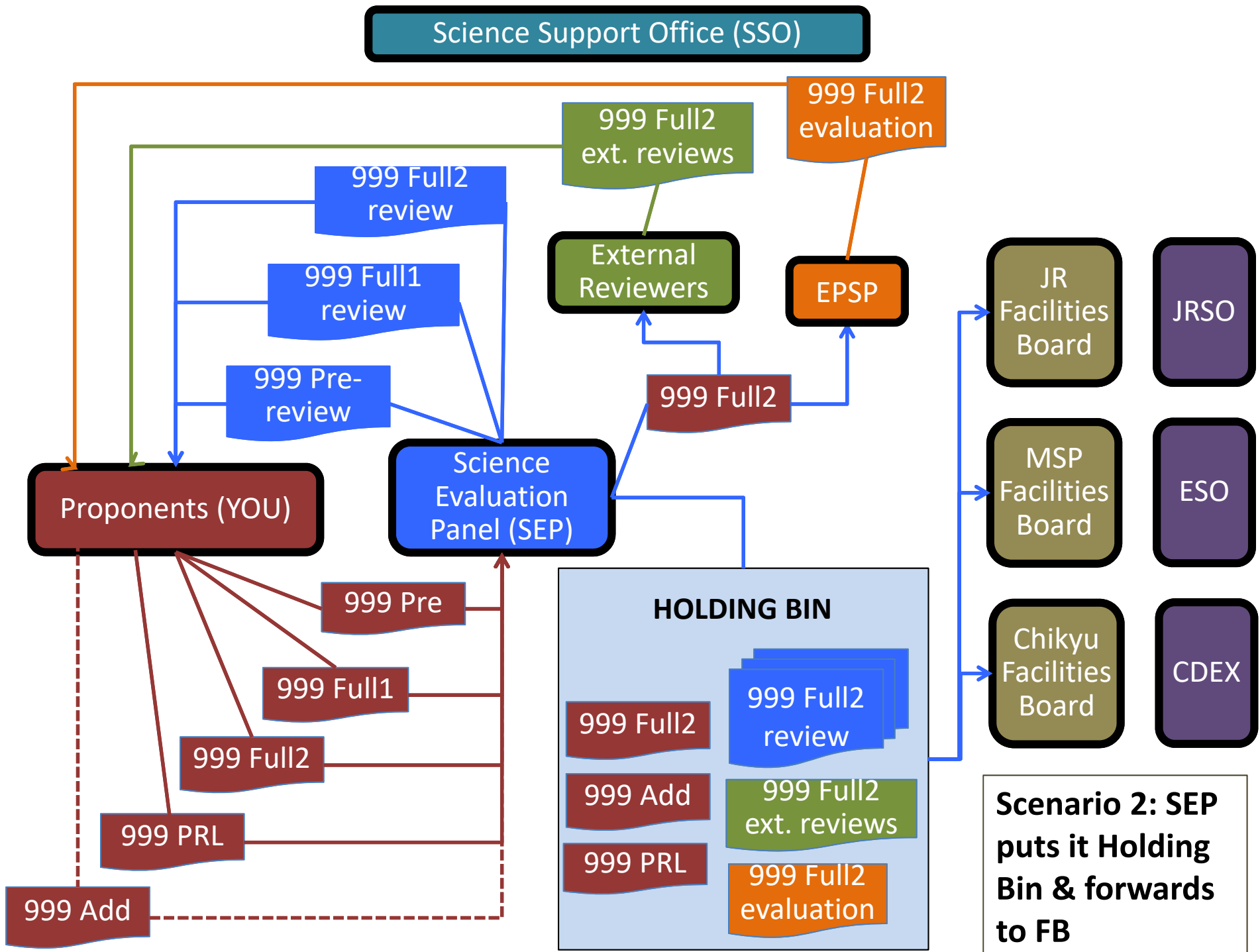
ESO

Chikyu Facilities Board

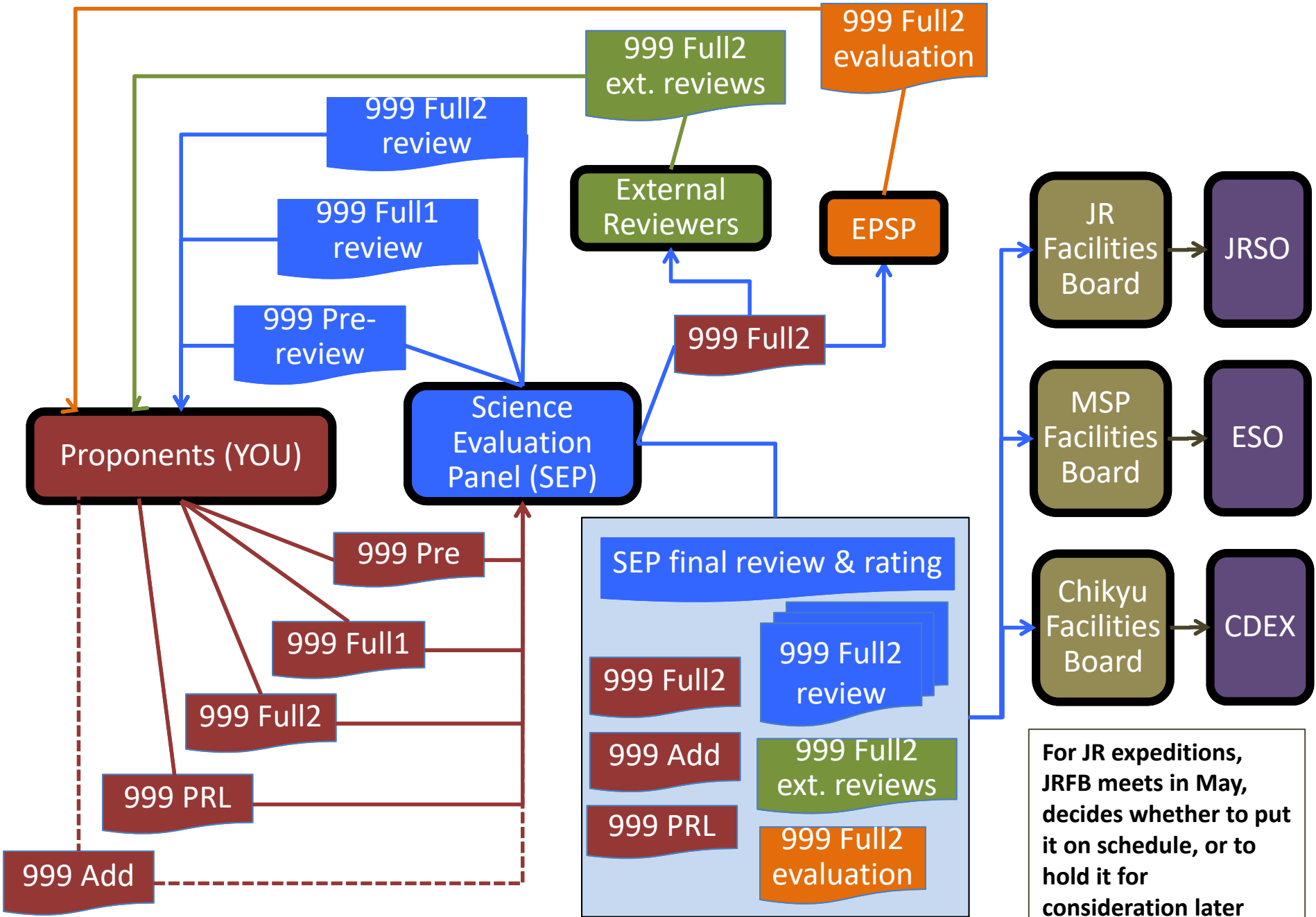
CDEX

- **Submit 999-PRL (response to external reviews)**
- **Submit 999-Add (additional info requested by SEP and/or EPSP)**

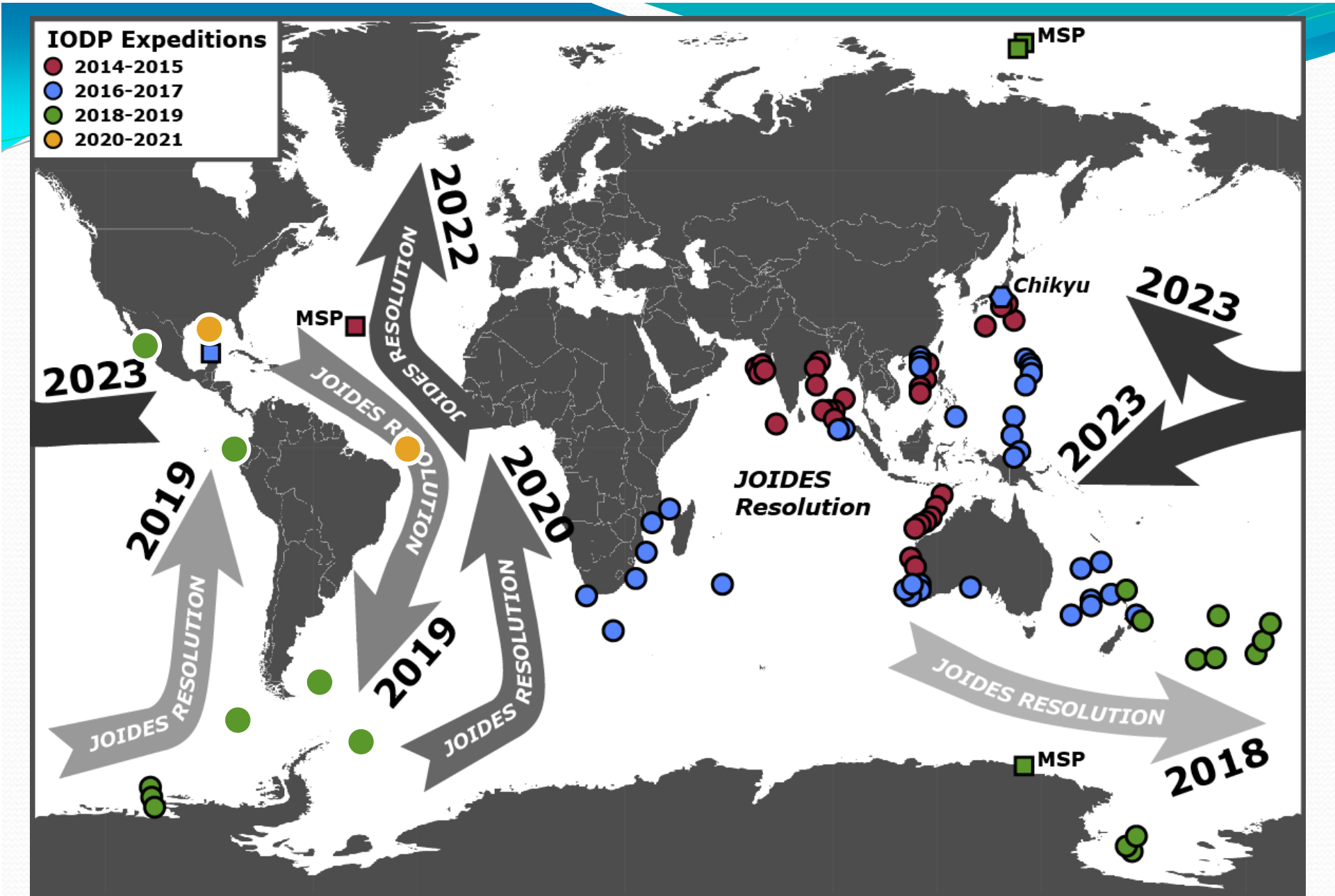




Science Support Office (SSO)







STATUS AFTER APPROVED SCHEDULE FOLLOWING IODP-1705



- IODP NEEDS SEISMIC IMAGING!

- 2015 SEP Consensus Statement: “The SEP wishes to convey concern regarding the increased pressures on the acquisition of academic active-source seismic data, some of which by design is conducted in support of scientific ocean drilling. Continued reduction in the international marine geoscience communities’ ability to collect seismic data in areas of scientific interest is jeopardizing the scope and impact of IODP science. The SEP consensus is that the IODP should stress the importance, both to member country funding agencies and environmental permit organizations worldwide, of high-quality subsurface images for science and safety in connection with expected continuation of IODP...”

# IODP NEEDS SEISMIC IMAGING!

[HOME](#)[ABOUT](#)[FOR SCIENTISTS](#)[PUBLICATIONS](#)[EXPEDITIONS](#)[LINKS & ACRONYMS](#)[CONTACT](#)

**IODP**  
INTERNATIONAL OCEAN  
DISCOVERY PROGRAM

exploring the earth under the sea



**FOR  
SCIENTISTS**



**FOR  
STUDENTS**



[« Go back to News & Events](#)

## Australasian IODP Workshop, Consensus Statement

Following community discussions at the Australasian IODP Workshop, it was agreed that a consensus statement relating to the importance of site survey data and especially the availability of high quality seismic reflection profiles should be developed. The statement, below details the critical importance of this material in continued productivity and safety of sub-seafloor research.

This statement will be circulated internationally, to research vessel managers and stakeholders, on behalf of the Workshop team.

[Consensus statement on need for site survey data for IODP](#)



Australian Government  
Australian Research Council



Australian  
National  
University



[View all Members](#)





- WHO HAS CAPABILITY

- Europeans have several smaller (1-3 km) systems, Sercel or Bolt airguns either leased or owned used by UK, Germany, France, Italy, and Spain. Most capable system is Spain's and available to other EU researchers.
- Australia's *Investigator* is also equipped for seismic survey work and is fitted with a seismic compressor system. Arrangements for a seismic acquisition system are currently under being considered.
- Japan's *Kairei* has an MCS system with 8 LL guns and a streamer (??km).
- US best in the academic world- R/V *Marcus Langseth*



## Escenarios de equipamiento móvil

Page 4 of 8

### ESCENARIO DE FUENTES SÍSMICAS

- Cañones de aire comprimido SERCEL® GGUN-II
- Cañones de aire comprimido BOLT, modelos 1500LL y 1900LL
- 2 compresores LMF 25/138-207E50
- 2 compresores Hamworthy 4TH 190 W 70 móviles (contenedores de 10')
- 2 controladores de cañones de aire comprimido RTS® BigShot
- Controlador de cañones de aire comprimido Hydrasystems® Hydrapulse
- Sistema de integración de datos de navegación EIVA® NaviPac
- 2 sistemas de generación y datación de eventos FEI-Zyfer® GPStarplus 565
- Contenedor-taller de 20'

### ESCENARIOS DE SÍSMICA DE REFLEXIÓN DE ALTA RESOLUCIÓN

- Mimi Streamer de alta resolución GeoResources® Geo-Sense 24
- Streamers tri-canal SIG modelo 16.3x40.175
- Sistema de adquisición de datos IXSEA DelphSeismic Plus
- Sistema de navegación integrado EIVA® NaviPac

### ESCENARIO DE SÍSMICA DE REFLEXIÓN MULTICANAL

- Streamer multicanal SERCEL® Sentinel (6 km, en dos chigres IBERCISA®)
- Sistema de adquisición de datos SERCEL® SEAL 408XL
- Sistemas de estabilización y posicionamiento acústico (birds) SERCEL® Nautilus
- Sistema de recuperación del streamer (retrievers) con sensores de campo magnético y rumbo OYO GEOSPACE® HSRD-500
- Boya de cola del streamer PartnerPlast® 800L Mini
- Sistema RGPS SEAMAP® Novatel OEM 04
- Sistema de navegación integrado EIVA® NaviPac
- Contenedor de sistemas de adquisición de sísmica de 10'
- Pasteca streamer ODIM® 700/53 550 64
- Sistema de control de calidad de datos sísmicos a tiempo real SERCEL® SQC-Pro.
- Sincronización de todas las redes de comunicaciones entre sistemas mediante servidor de tiempos dedicado.

### Article Index

- [Equipamiento móvil](#)
- [Muestreo](#)
- [Acústica / Geofísica](#)
- [Sísmica](#)
- [OBSs](#)
- [Fondeos](#)
- [Pescas](#)
- [Vehículos submarinos](#)
- [All Pages](#)







## Science Equipment

JL

### MCS Acquisition

- Secret SealXI (408)
- SSI Seisnet active tape emulation

### Hydrophone arrays

- Sentinel Solid Acquisition Section (SSAS) 3Hz
- 12.5 meter groups
- 150m sections
- up to four towed each 6.75 km long
- separation 50 - 150 meters

### Source Arrays

- 4 Sub-Array w/ 10 elements each
- 9 active elements w/ one spare per Sub-Array
- Each Sub-Array is 15 meter in length
- 1650 cu. In. per Sub-Array

### Source Controller

- SeaMAP DigiShot

### MCS geometry sensors

- ION Digicourse 5011 Compassbirds
- ION Digicourse Digirange
- PBX System PosNET Streamer Tailbuoy GPS
- PBS System Seismic Source GPS (1 per Sub-Array)

### MCS Navigation

- ION Concept Systems, Ltd
- Spectra Navigation Management System
- Sprint Navigation Processing System
- Reflex 3D Binning System

### MCS QC

- Secret SealXI
- SSI Seisnet active tape emulation
- ProMaxx
- Focus

### Communications

- HighSeasNet
- Inmarsat Sailor 500 FleetBroadband
- Iridium Sailor Satellite Phone

### Multibeam / Echosounder

- Kongsberg EM122 1° x 1°
- Knudsen 3260 Echosounder

### Marine Mammals Observation/ Mitigation

- Seiche Passive Acoustic Monitoring Streamer
- 2 x Fujinon Big Eye Binoculars



- CONCLUSIONS:

- IODP fails without adequate imaging and lots of proposals in the system or planned which need survey work
- Many international options for seismic equipment and capable vessels for deployment, but no one likes a transit AND the US system – R/V *Marcus Langseth* is 2x as capable as any other academic option globally
- International community has many seismic experts and SEP is a place where such expertise meets 2x a year
- Informal discussions show that there is significant interest in use of the *Langseth* when it is in the right place. Key partners? Financial options for use? Ship track planning? Too late?