

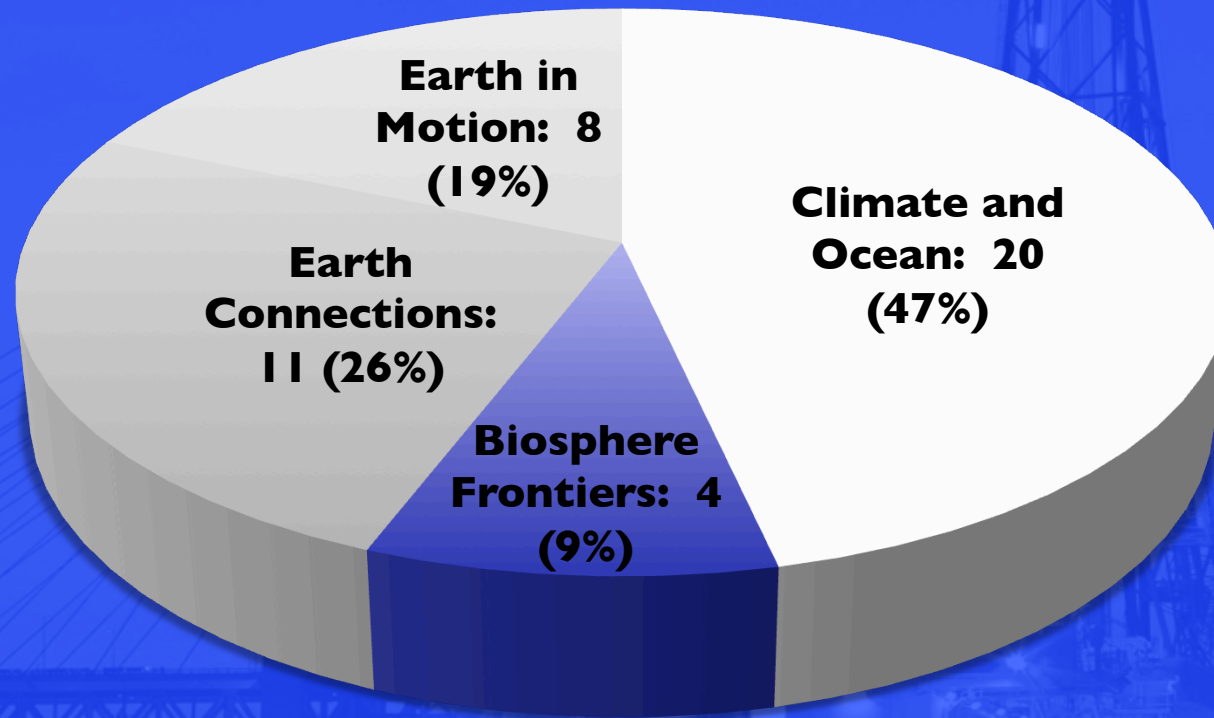
International Ocean Discovery Program:

*Progress toward
Science Plan Fulfillment*

Prepared for the 2016 IODP Forum
Buzios, Brazil
James A. Austin, Jr., Chair



Completed / **Scheduled** Expeditions (43) by Theme



Key for the following slides:

2012 top US priority challenge for JR IODP operations

JOIDES Resolution

Mission-Specific Platform

Chikyu (** = PCT approved)

Note: updated after March-June
2016 CIB/JRFB/EFB/SEP decisions.

Climate and Ocean Change

| Science Plan Challenge | <u>Completed</u> / Scheduled Expeditions (#) = submitted proposal |
|---|---|
| 1. Climate response to high atmospheric CO ₂ | <p><u>361 S.African Climate (SAFARI)</u></p> <p>369 SW Australia K Climate & Tectonics (760) - 2017</p> <p>371 Tasman Frontier Subduction & Climate (832) - 2017</p> <p>373 Antarctic Cenozoic Paleoclimate (813) - 2018</p> <p>377 Arctic Ocean Paleoceanography (708) - 2018</p> <p>378 South Pacific Paleogene Climate (567) - 2018</p> |
| 2. Ice sheet and sea level response to warming climate | <p><u>359 Maldives Monsoon & Sea Level</u></p> <p>373 Antarctic Cenozoic Paleoclimate (813) - 2018</p> <p>374 Ross Sea WAIS History (751) - 2018</p> <p>377 Arctic Ocean Paleoceanography (813) - 2018</p> <p>379 Amundsen Sea WAIS (839) - 2019</p> |

Climate and Ocean Change

| Science Plan Challenge | <u>Completed</u> / Scheduled Expeditions |
|---|---|
| 3. Control of regional precipitation patterns | <u>353 Indian Monsoon Rainfall</u> <u>354 Bengal Fan</u> <u>355 Arabian Sea Monsoon - CPP</u> <u>356 Indonesian Throughflow</u> <u>359 Maldives Monsoon Rainfall</u> <u>361 S.African Climate (SAFARI)</u> 363 Western Pacific Warm Pool (799) - late 2016 |
| 4. <i>Ocean response to chemical perturbation</i> | <u>364 Chicxulub Impact Crater</u> 369 SW Australia K Climate & Tectonics (760) - 2017 378 South Pacific Paleogene Climate (567) - 2018 374 Ross Sea WAIS History (751) - 2018 |

Biosphere Frontiers

| Science Plan Challenge | <u>Completed</u> / Scheduled Expeditions |
|---|---|
| 5. Origin, extent, significance of sub-seafloor biosphere | 357 Atlantis Massif 366 Mariana Convergent Margin (505/693-APL) - late 2016 376 Brothers Arc Flux (818) – 2018 374 Ross Sea WAIS History (751) - 2018 |
| 6. Limits of subseafloor life | 370 Temp. Limit of Deep Biosphere (865) - 2016 376 Brothers Arc Flux (818) – 2018 374 Ross Sea WAIS History (751) - 2018 |
| 7. Ecosystem sensitivity to environmental change | 364 Chicxulub Impact Crater |

Earth Connections

| Science Plan Challenge | <u>Completed</u> / Scheduled Expeditions |
|--|--|
| 8. Upper mantle composition/dynamics | <u>357 Atlantis Massif</u> <u>360 Indian Ridge Moho</u> |
| 9. Seafloor spreading and ocean crustal architecture | <u>349 South China Sea Tectonics</u> 367/368 South China Sea Rifted Margin - 2017 369 SW Aust. K Climate & Tectonics (760) - 2017 |
| 10. Chemical exchange between crust and seawater | <u>357 Atlantis Massif</u> 376 Brothers Arc Flux (818) - 2018 |
| 11. Subduction and formation of continental crust | <u>350 Izu-Bonin-Mariana Rear Arc</u> <u>351 Izu-Bonin-Mariana Arc Origins</u> <u>352 Izu-Bonin-Mariana Fore-arc</u> 371 Tasman Frontier Subduction & Climate (832) - 2017 |

Earth in Motion

| Science Plan Challenge | <u>Completed</u> / Scheduled Expeditions |
|---|--|
| 12. Control of earthquakes, landslides, tsunamis | <u>365 NanTroSEIZE Megasplay LTBMS</u> 362 Sumatra Seismogenic Zone (837) - 2016 372 Creeping Gas Hydrate Slides & Hikurangi LWD (84I-APL) - 2017/18 375 Hikurangi Observatory (78IA) - 2018 |
| 13. Storage/flow of sub-seafloor carbon | 372 Creeping Gas Hydrate Slides & Hikurangi LWD (84I-APL) - 2017/18 |
| 14. Fluids linking biological, chemical, physical processes | <u>357 Atlantis Massif</u> 366 Mariana Convergent Margin (505/693-APL) - 2016/17 376 Brothers Arc Flux (818) - 2018 |

Full Proposals by Theme / Challenge

- Updated after March-June 2016 CIB/FB/SEP decisions
- Does not include pre-proposals (except as noted)

Key:

* = Holding Bin, after external review

** = undergoing external review (following June 2016 SEP)

() = done during Integrated Ocean Drilling Program

{ } = security issues

2012 top U.S. priority challenge for JR

Mission-Specific Platform

Chikyu (***) = PCT approved)

JOIDES Resolution

Climate and Ocean Change

| Challenge | At CIB/FBs | At SEP |
|---|--|--|
| 1. Climate response to high atmospheric CO ₂ | 771 Iberian Margin Paleoclimate {778 Tanzania Margin Paleoclimate Transect} 834 Agulhas-Transkei Transect 897-APL Southern Ocean K Anoxia | 747 N.Atl. Paleogene Climate 831-APL Campbell Drift Climate* 846-APL Falkland Water Depth 848 Weddell Sea History 871-CPP Lord Howe Rise** |
| 2. Ice sheet and sea level response to warming climate | 716 Hawaiian Drowned Reefs 730 Sabine Bank Sea Level 732 Antarctic Pen. Sed. Drifts 771 Iberian Margin Paleoclimate | 848 Weddell Sea History 863 MDP Integrated S. Ocean Lat. Transects 888 Aleutian Basin Formation 902 Iceberg Alley** |

Climate and Ocean Change

| Challenge | At CIB/FBs | At SEP |
|---|---|--|
| 3. Control of regional precipitation patterns | {549 Arabian Sea Monsoon} {595 Indus Fan/Murray Ridge} 618 East Asian Margin 777-APL Okinawa | 819-APL Arabian Sea OMZ 859 Amazon Margin Drilling 863 MDP Integrated S. Ocean Lat. Transects 868 Drake/Scotia |
| 4. Ocean response to chemical perturbation | 897-APL Southern Ocean Cretaceous Anoxia | 747 N.Atl. Paleogene Climate 819-APL Arabian Sea OMZ 831-APL Campbell Drift Climate 858-APL NW Australia 857B-pre DREAM: Balearic Promontory 871-CPP Lord Howe Rise** |

Biosphere Frontiers

| Challenge | At CIB/FBs | At SEP |
|--|---------------------------|--|
| 5. Origin, extent, significance of subseafloor biosphere | 633 Costa Rica Mud Mounds | 830-APL Scott Plateau 833 Guaymas Basin Activity 857B pre DREAM: Balearic Promontory 871-CPP Lord Howe Rise** |
| 6. Limits of subseafloor life | | 830-APL Scott Plateau 853 South Atlantic Transect 871-CPP Lord Howe Rise** |
| 7. Ecosystem sensitivity to environmental change | {724 Gulf of Aden} | 819-APL Arab OMZ 859 Amazon Margin Drilling 858-APL NW Aust. 857B pre DREAM: Balearic Promontory |

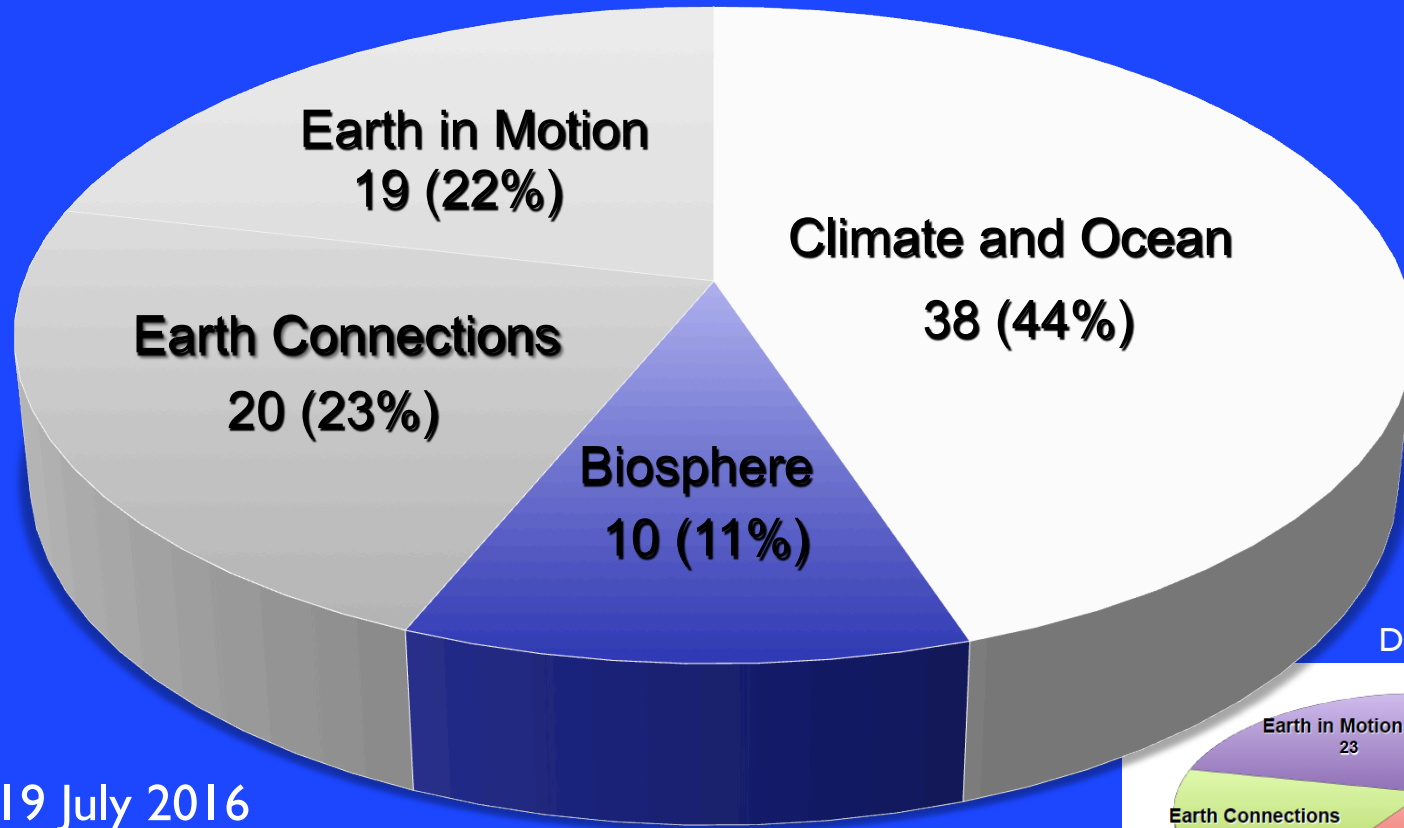
Earth Connections

| Challenge | At CIB/FBs | At SEP |
|--|--|--|
| 8. Upper mantle composition and dynamics | 522 Superfast Spreading Crust | 834 Agulhas-Transkei Transect 805 Mohole to the Mantle 892 Reykjanes Mantle Convection |
| 9. Seafloor spreading and ocean crustal architecture | 522 Superfast Spreading Crust 769-APL Costa Rica Crustal Architecture (504B logs) 879 Corinth Rift Development | 853 South Atlantic Transect 805 Mohole to the Mantle 871-CPP Lord Howe Rise** |
| 10. Chemical exchange between crust and seawater | | 853 South Atlantic Transect 892 Reykjanes Mantle Convection |
| 11. Subduction and formation of continental crust | 698 IBM Middle Crust*** 781B Hikurangi Riser | 871-CPP Lord Howe Rise** 888 Aleutian Basin Formation |

Earth in Motion

| Challenge | At CIB/FBs | At SEP |
|---|---|---|
| 12. Control of earthquakes, landslides, tsunamis | NanTroSEIZE 3,4*** (603C,D) 537B CRISP B*** 781B Hikurangi Riser 835 JTRACK | 770 Kanto Asperity 796 Nice Amphibious Drilling 811 Cape Fear Slope Stability |
| 13. Storage and flow of subseafloor carbon | 533 Cascadia CORKs 791-APL Cont. Margin Methane Cycling 887-CPP Gulf of Mexico Hydrates | 811 Cape Fear Slope Stability 836-APL Cont. Margin Methane Cycling |
| 14. Fluids linking biological, chemical, physical processes | 837 New England Hydrogeology 633 Costa Rica Mud Mounds | |

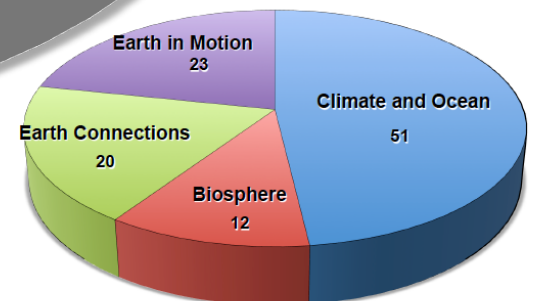
Active proposals (including pre-proposals): 87 by Science Plan themes



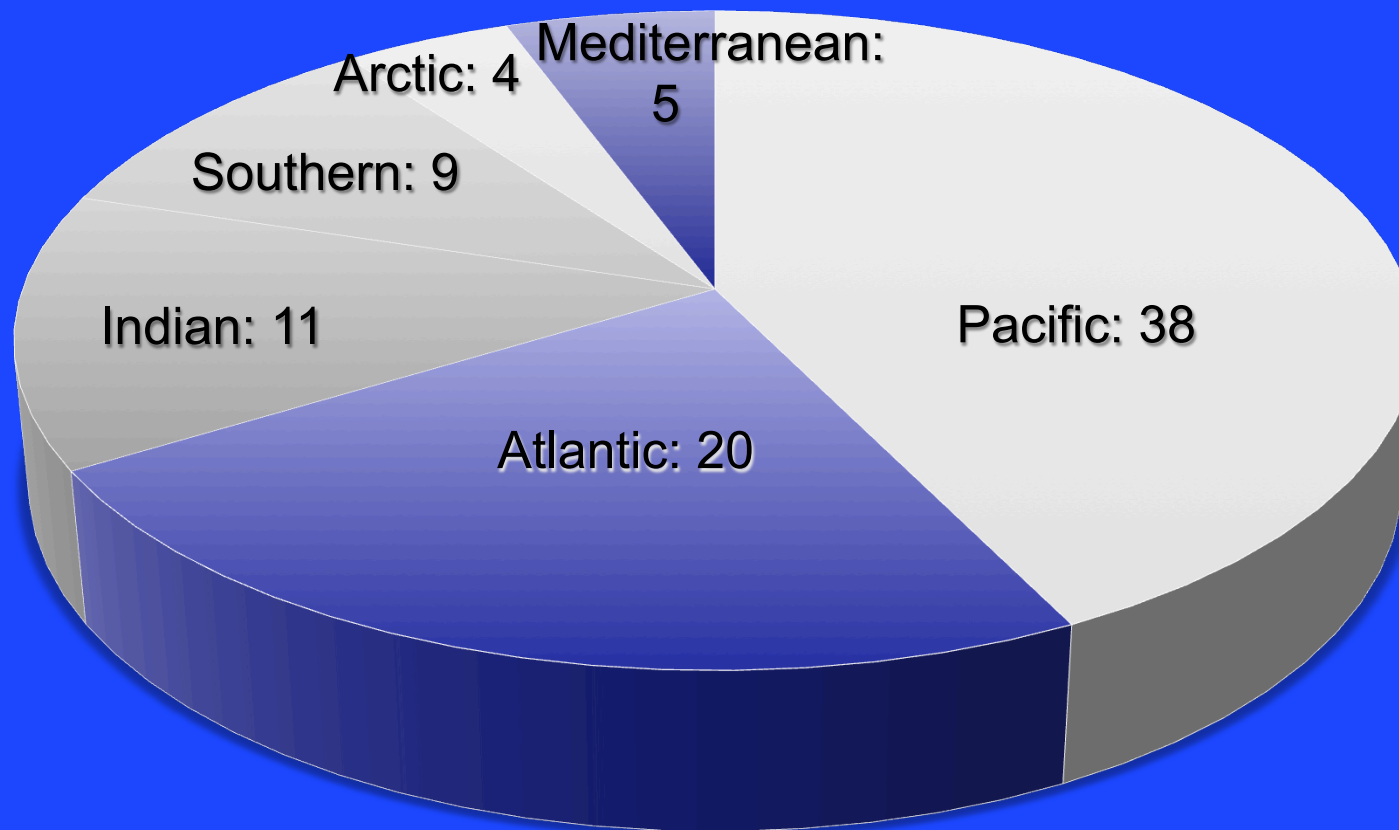
As of 19 July 2016

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December 2013

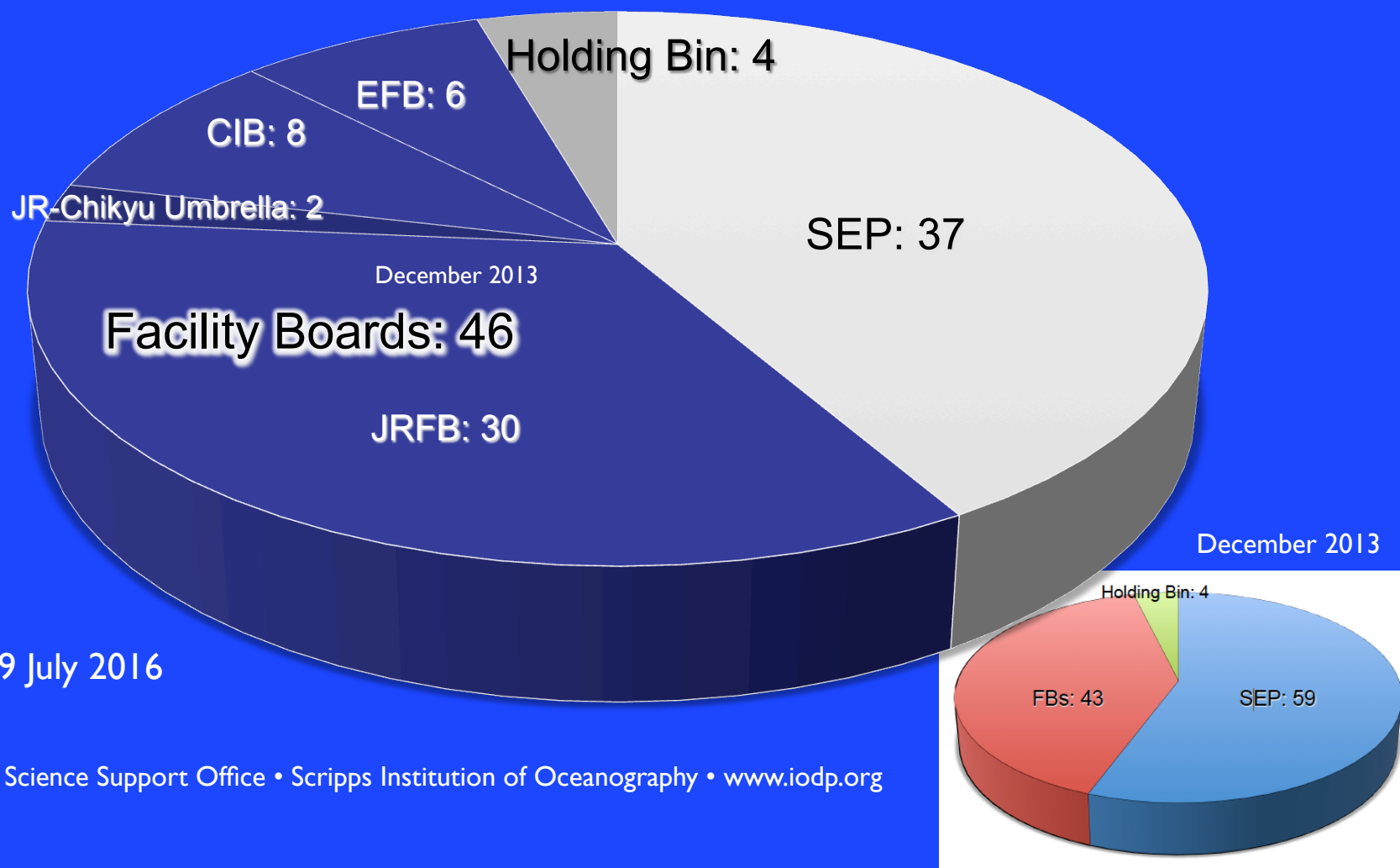


Active proposals: 87 by target ocean



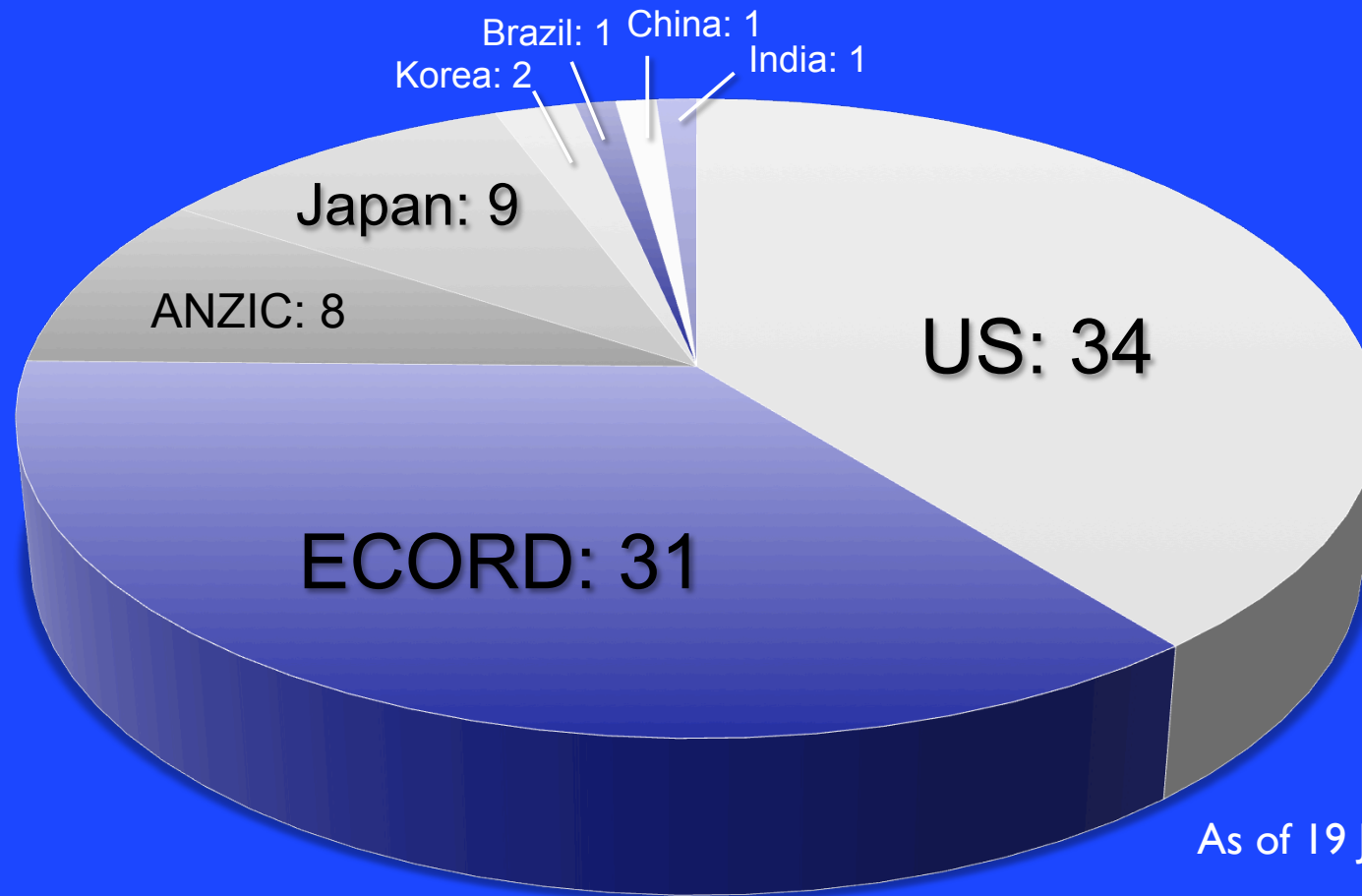
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Active proposal status: 87 by review stage



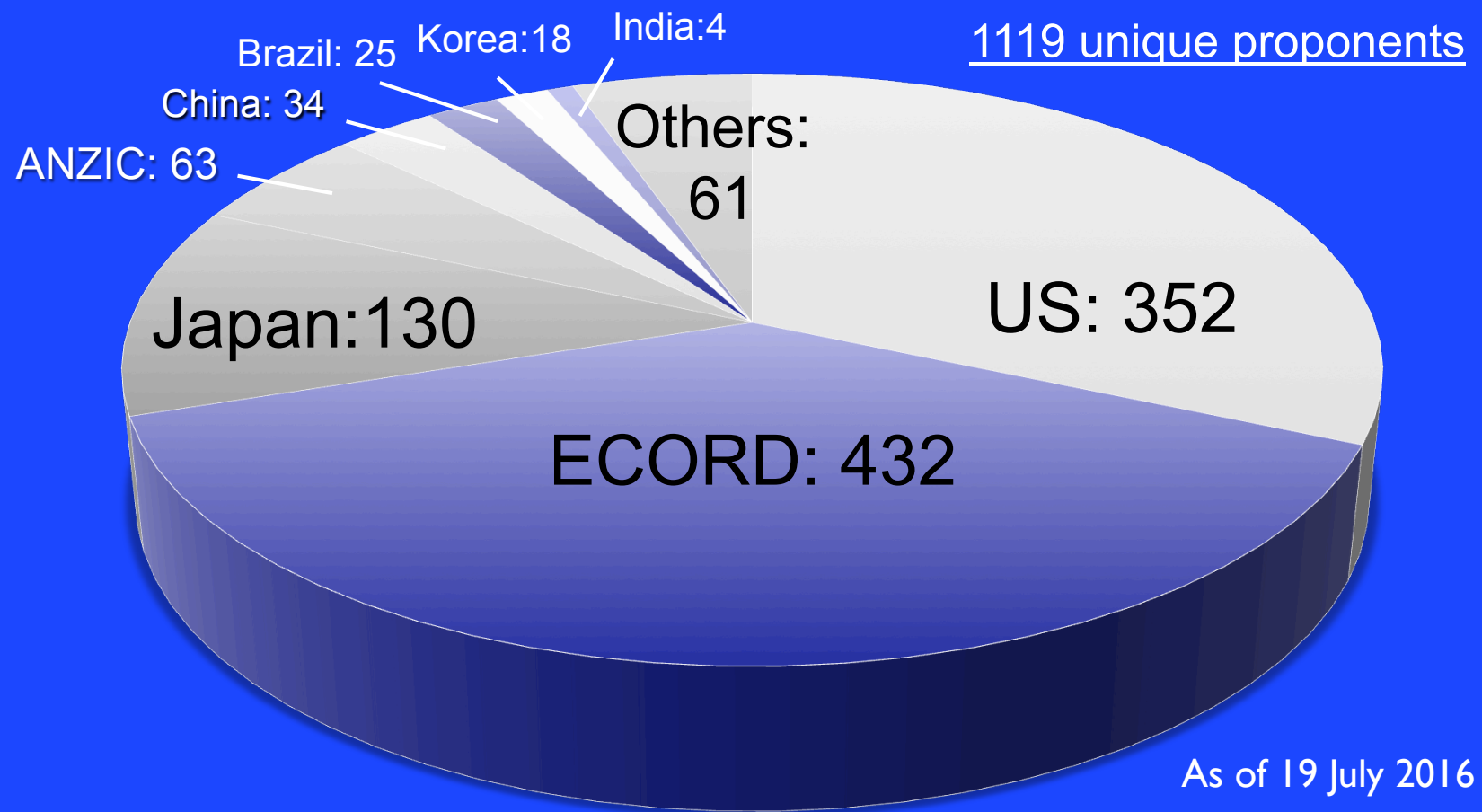
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Active proposals: 87 by lead proponent's member affiliation



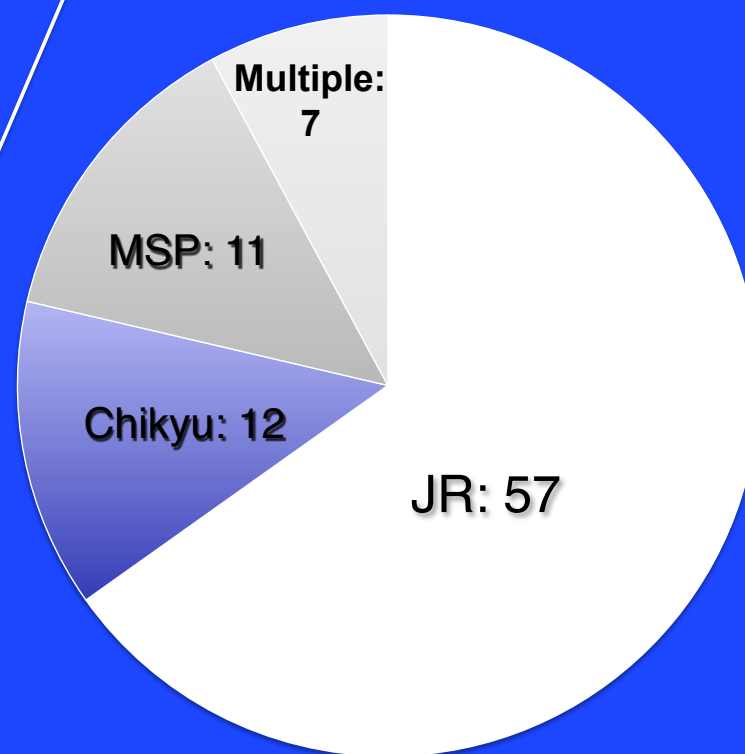
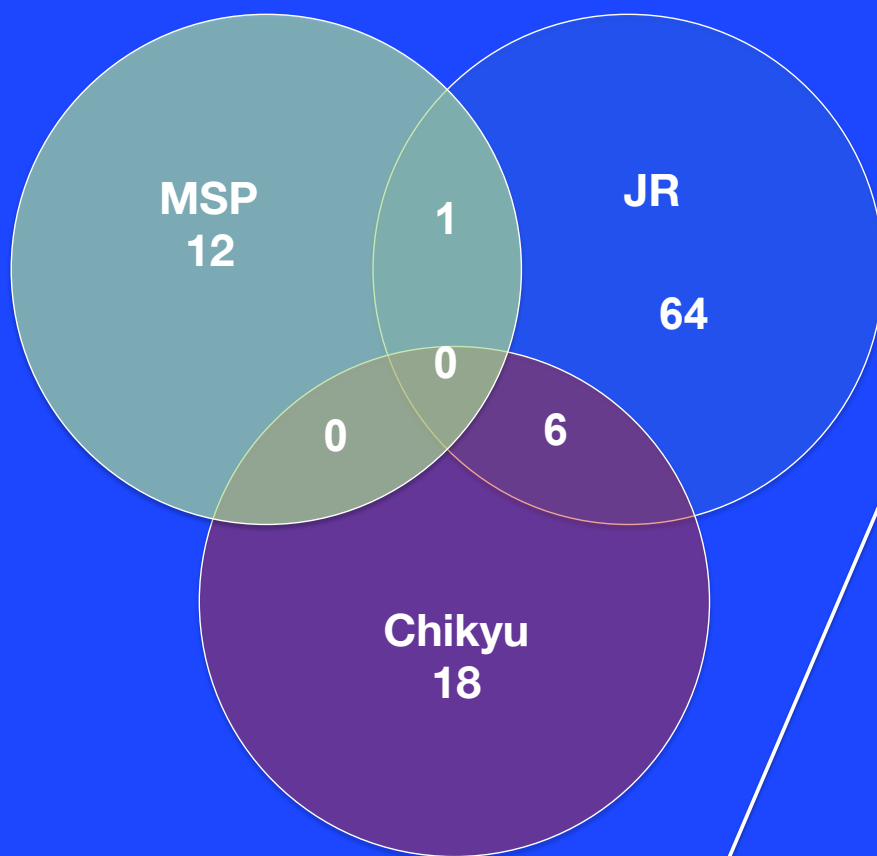
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Active proponent distribution



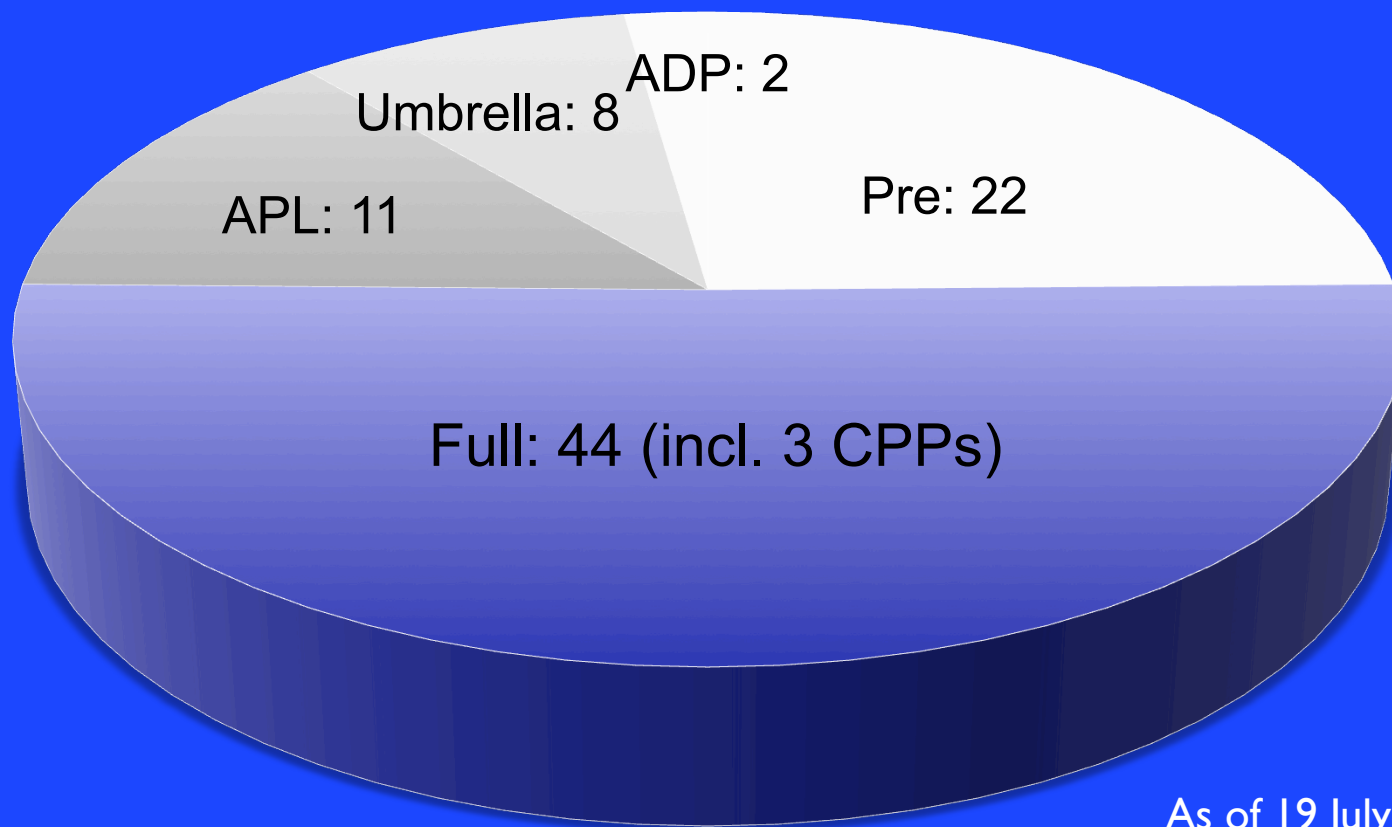
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Drilling Platforms for 87 Active Proposals



As of 19 July 2016

Active proposals: 87 by proposal category



As of 19 July 2016

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