

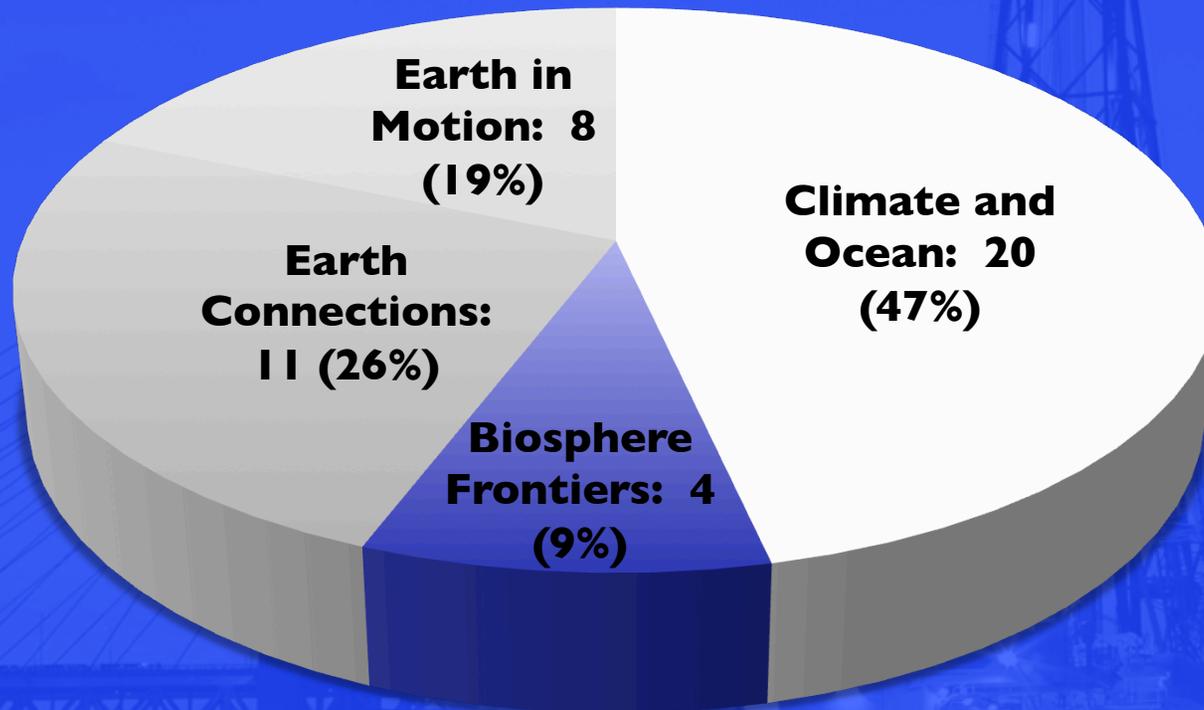
International Ocean Discovery Program:

*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> 369 SW Australia K Climate & Tectonics (760) - 2017 371 Tasman Frontier Subduction & Climate (832) - 2017 373 Antarctic Cenozoic Paleoclimate (813) - 2018 377 Arctic Ocean Paleoceanography (708) - 2018 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> 373 Antarctic Cenozoic Paleoclimate (813) - 2018 374 Ross Sea WAIS History (751) - 2018 377 Arctic Ocean Paleoceanography (813) - 2018 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
<p>12. Control of earthquakes, landslides, tsunamis</p>	<p><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</p>
<p>13. Storage/flow of sub-seafloor carbon</p>	<p>372 Creeping Gas Hydrate Slides & Hikurangi LWD (84I-APL) - 2017/18</p>
<p>14. Fluids linking biological, chemical, physical processes</p>	<p><u>357 Atlantis Massif</u> 366 Mariana Convergent Margin (505/693-APL) - 2016/17 376 Brothers Arc Flux (818) - 2018</p>

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 seafloor 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 seafloor 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

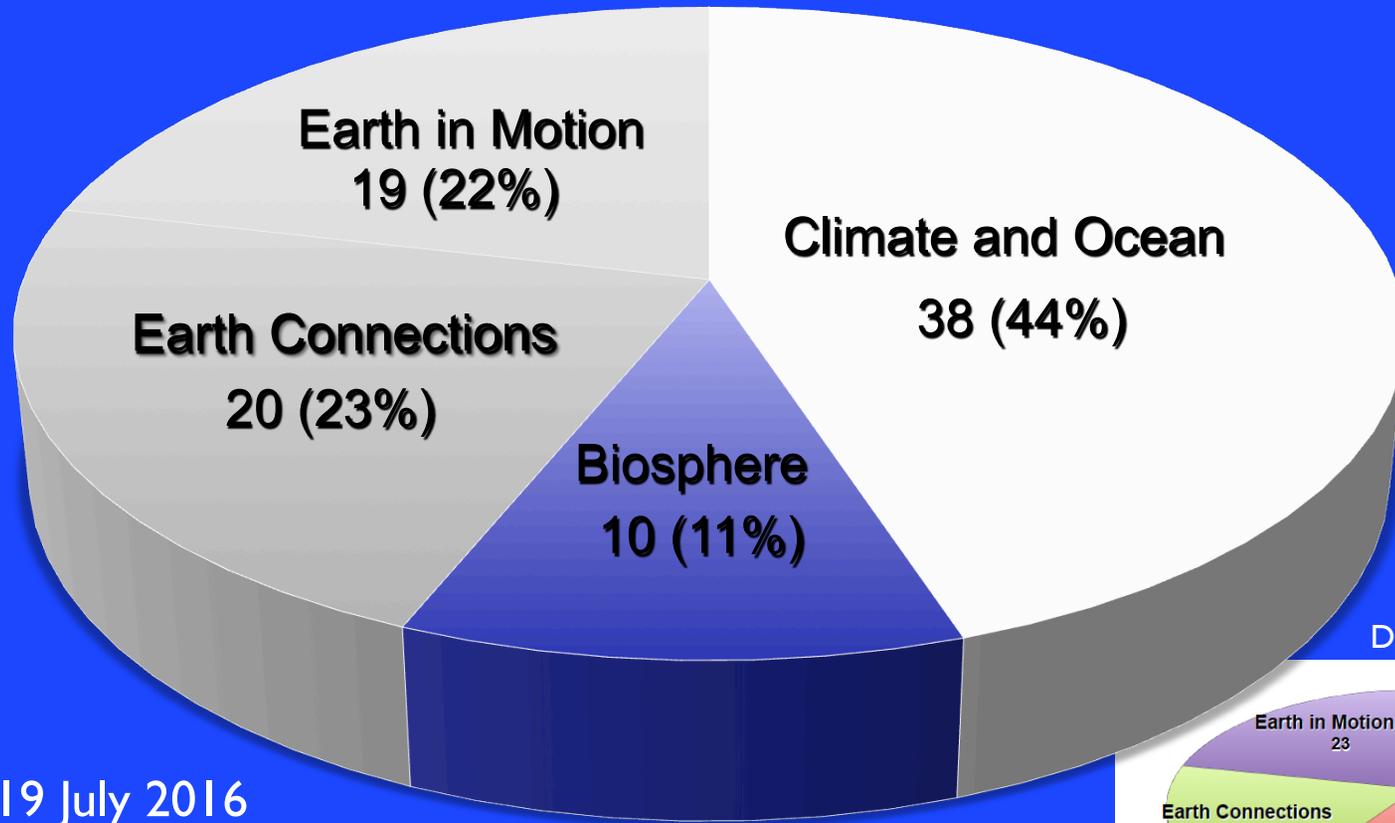
Earth Connections

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

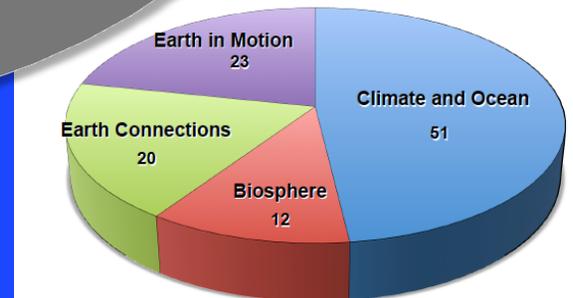
Challenge	At CIB/FBs	At SEP
12. Control of earthquakes, landslides, tsunamis	NanTroSEIZE 3,4*** (603C,D) 537B CRISP B*** 781B Hikurangi Riser 835 JTRACK	770 Kanto Asperity 796 Nice Amphibious Drilling 811 Cape Fear Slope Stability
13. Storage and flow of subseafloor carbon	533 Cascadia CORKs 791-APL 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



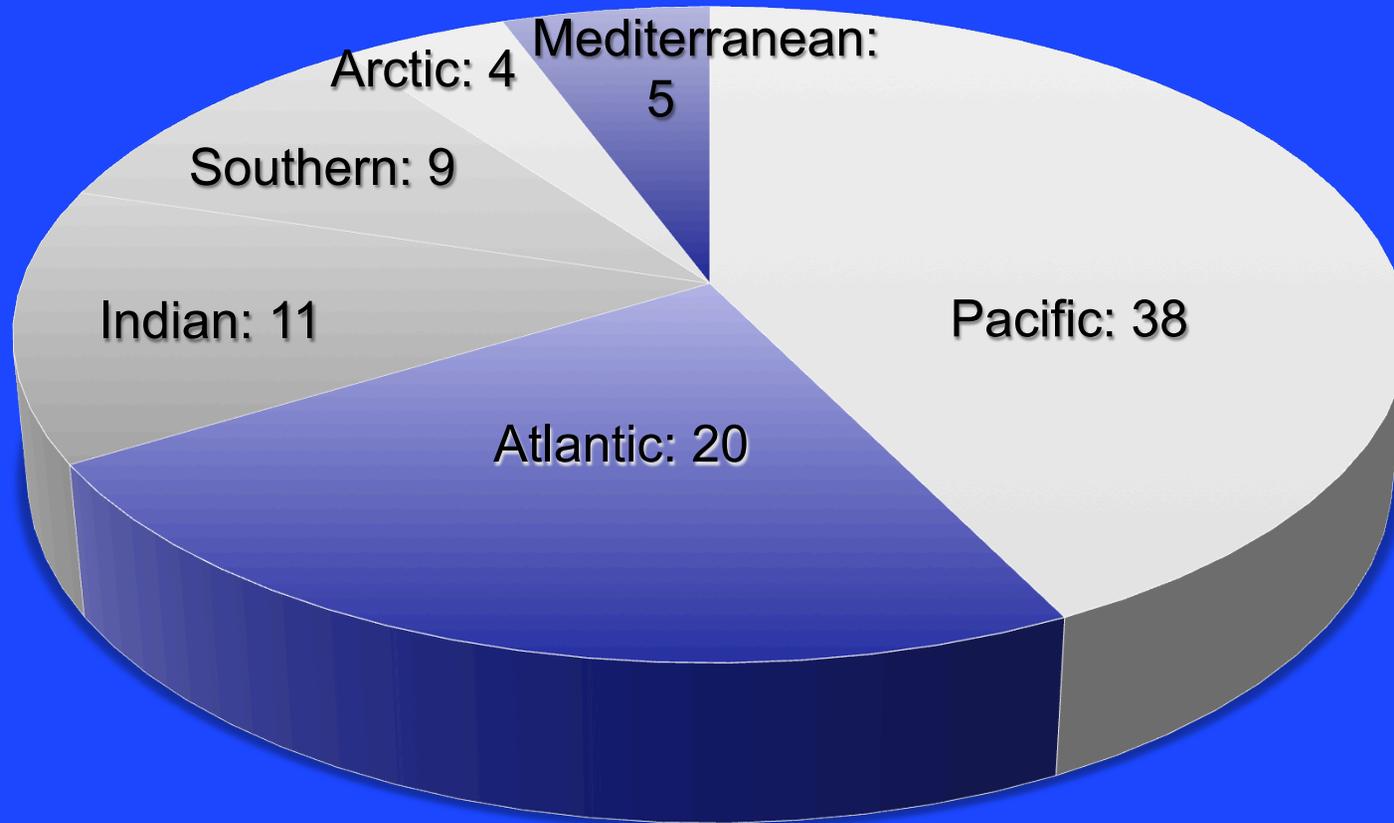
As of 19 July 2016

December 2013



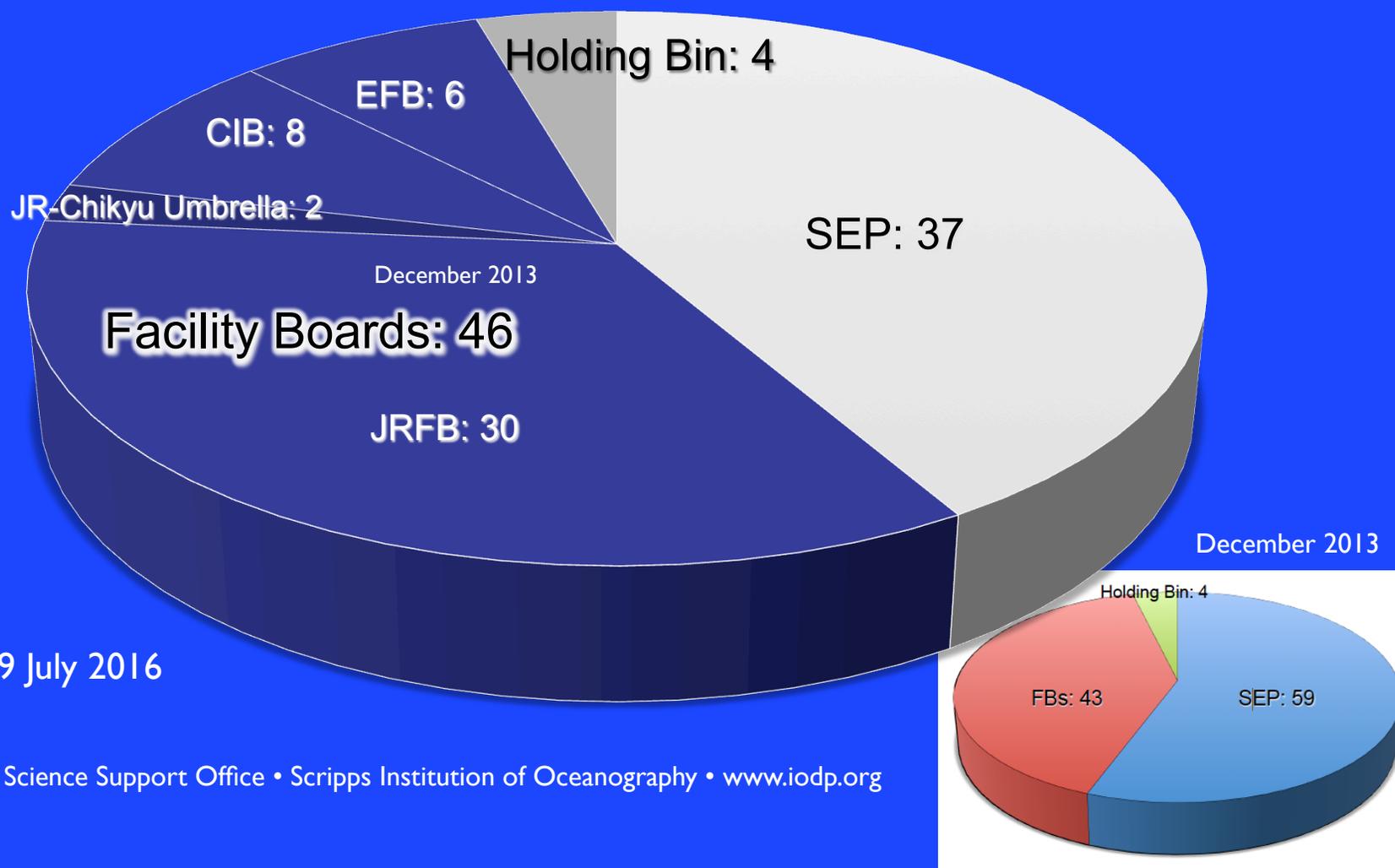
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Active proposals: 87 by target ocean



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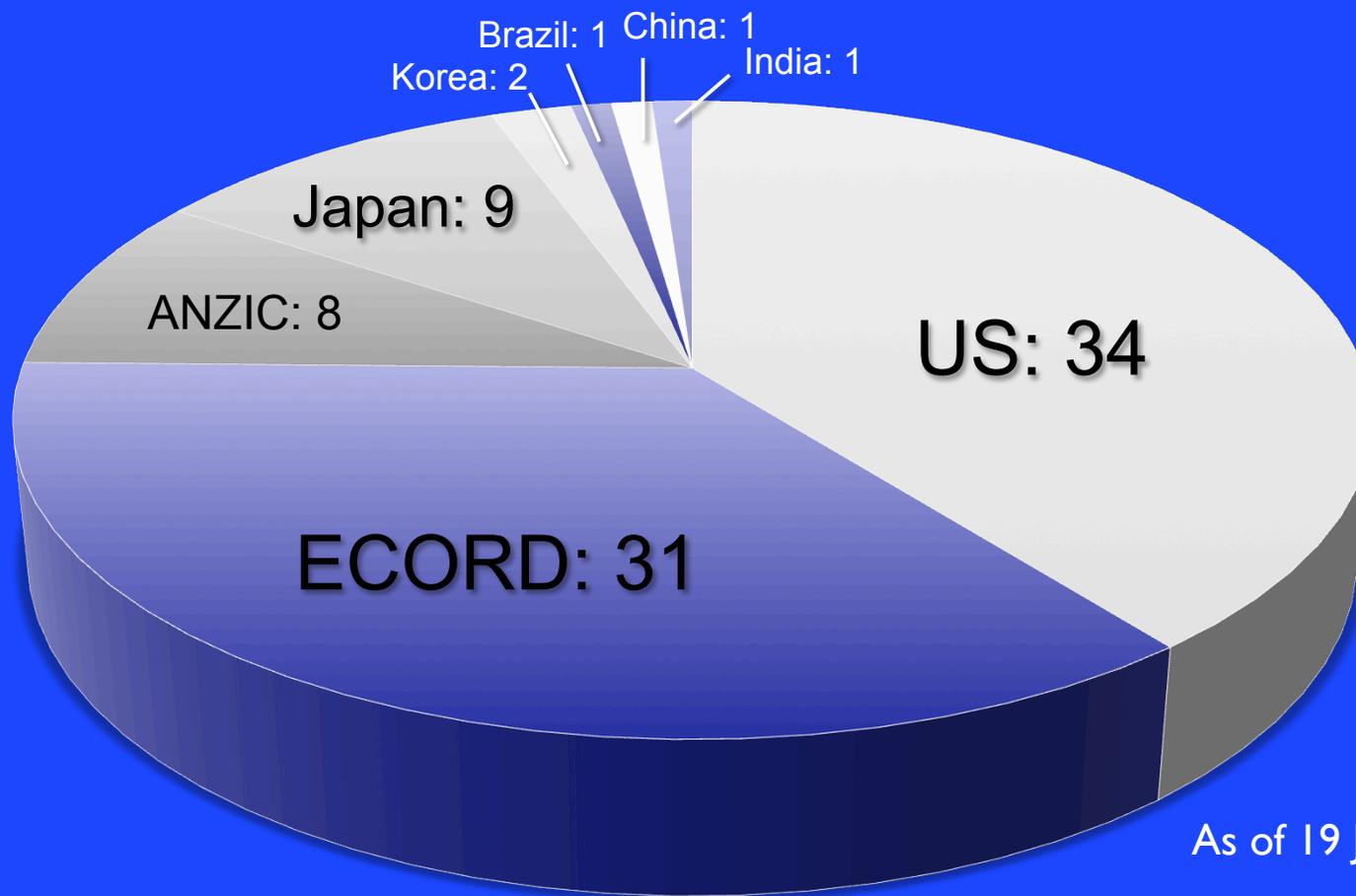
Active proposal status: 87 by review stage



As of 19 July 2016

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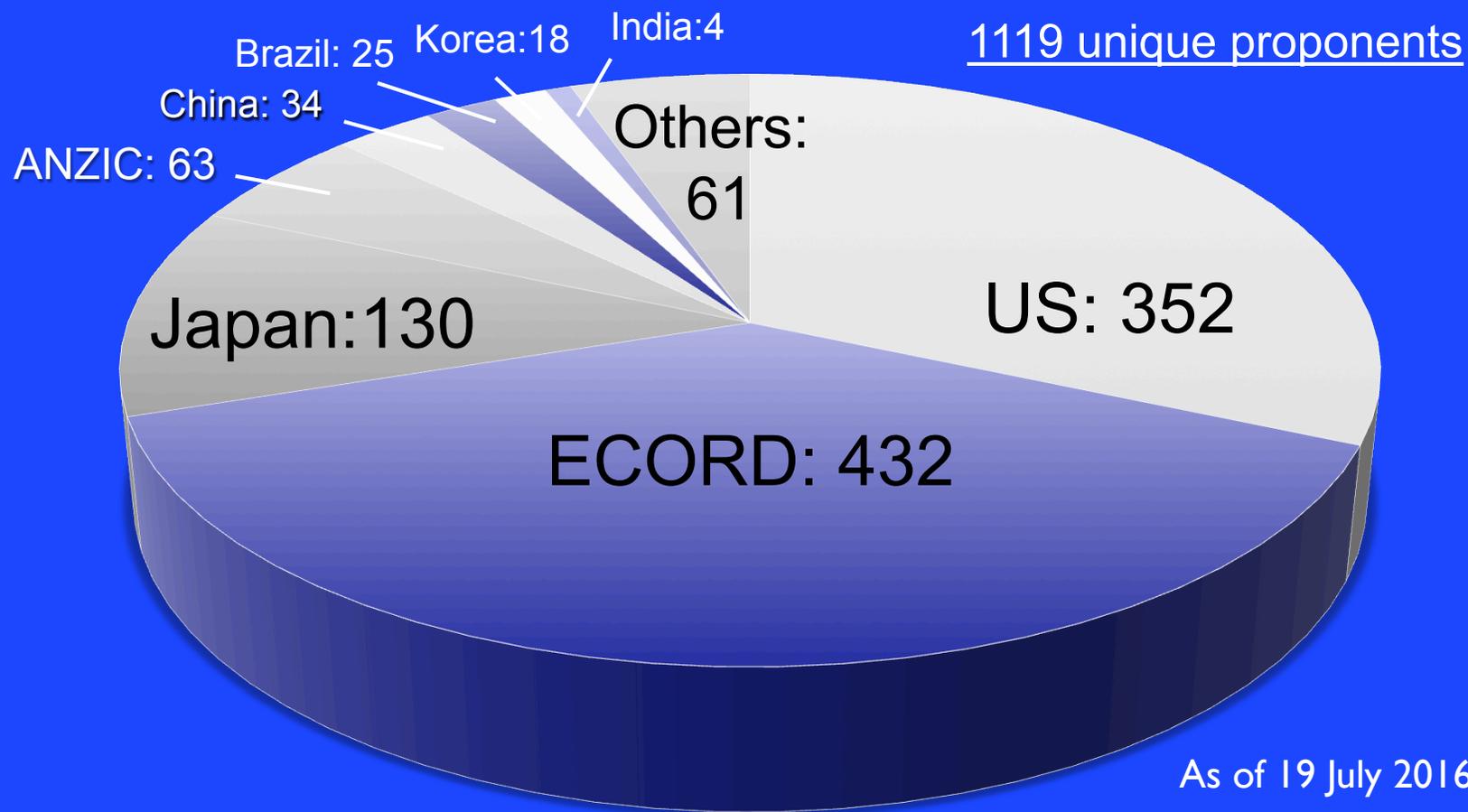
Active proposals: 87 by lead proponent's member affiliation



As of 19 July 2016

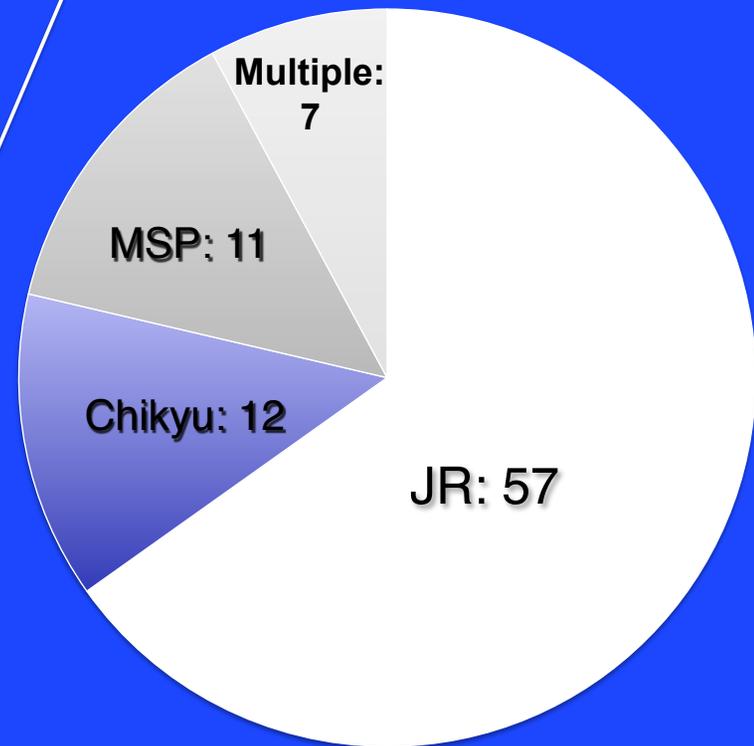
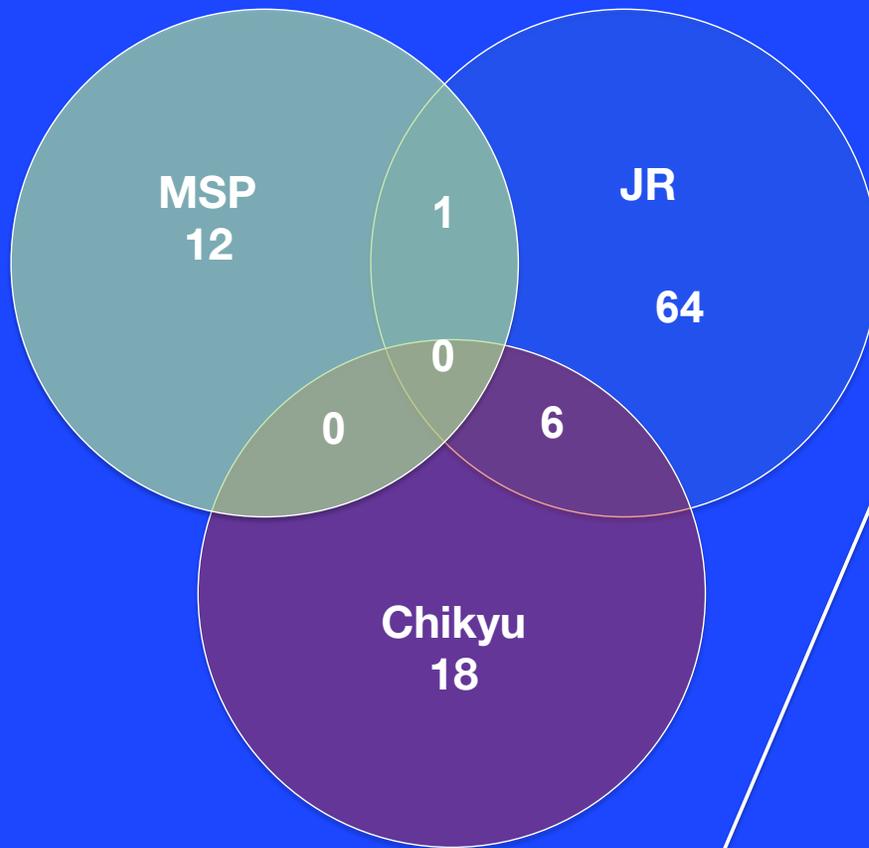
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Active proponent distribution



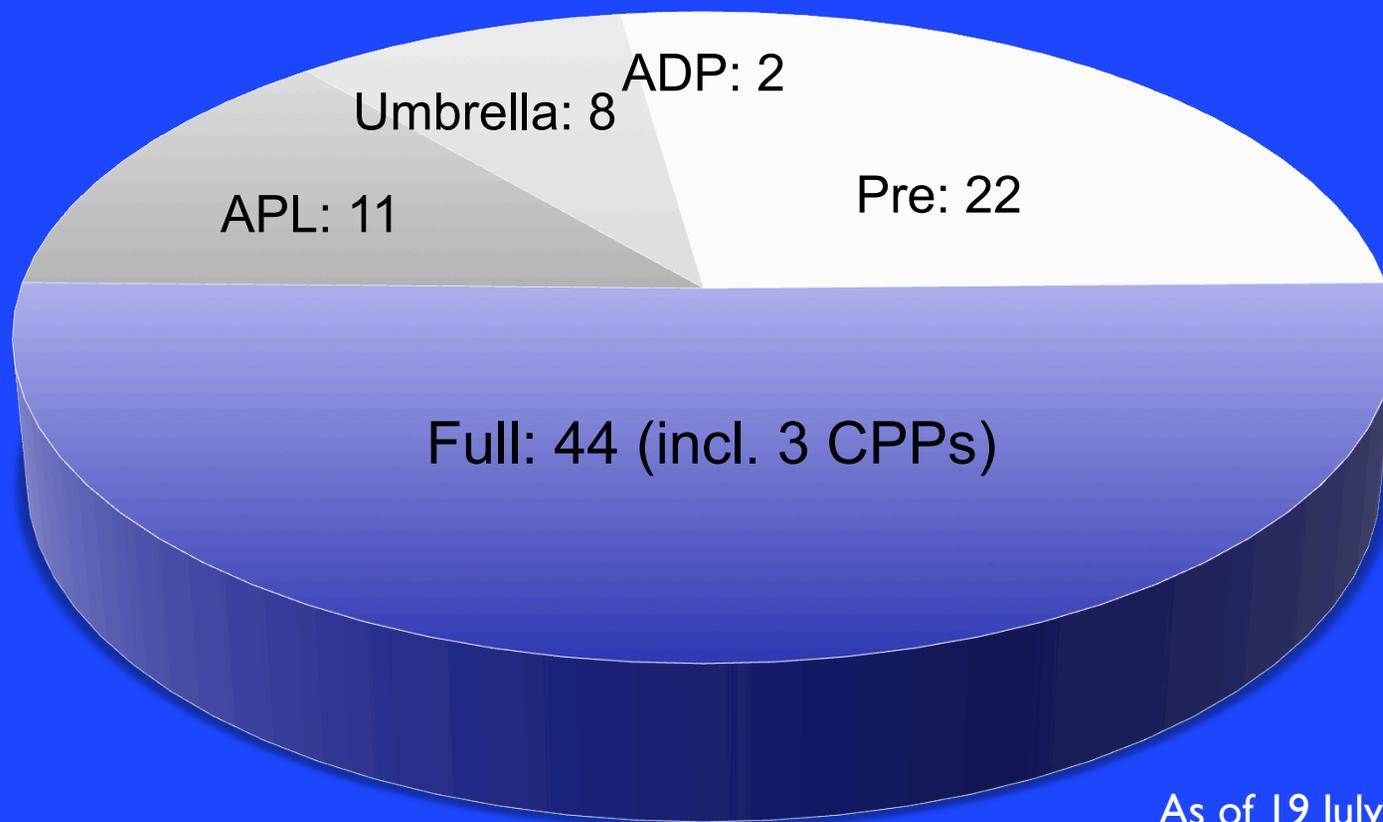
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Drilling Platforms for 87 Active Proposals



As of 19 July 2016

Active proposals: 87 by proposal category



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