Operations Task Force Meeting Report Spring 2010

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Introduction

This report covers meetings held in March and April 2010 that addressed issues pertaining to the Fiscal Year (FY) 2011 operational schedule and development of possible operational schedules through the end of the program (2013).

24 March 2010 Meeting (University of Sydney, Sydney, Australia)

Operations Task Force Memb	bers
David Divins	USIO
Nobuhisa Eguchi	CDEX
Dan Evans	ESO
Gabriel Filippelli	SPC
Gretchen Früh-Green	SPC
Robert Gatliff	ESO
Barbara John	SPC
Junzo Kasahara	SPC
Hans Christian Larsen	IODP-MI, Chair
Mitch Malone	USIO
Naohiko Ohkouchi	SPC
Observers	
Wataru Azuma	CDEX
Hiroshi Kawamura	IODP-MI
Yoshi Kawamura	IODP-MI
Denise Kulhanek	IODP-MI
Alberto Malinverno	USIO
Ben van der Pluijm	SPC
Masaoki Yamao	CDEX

26-27 April 2010 Meeting (IODP-MI, Tokyo, Japan)

Operations Task Force Members						
David Divins	USIO					
Nobuhisa Eguchi	CDEX					
Dan Evans	ESO					
Gabriel Filippelli	SPC					
Gretchen Früh-Green*	SPC					
Robert Gatliff	ESO					
Barbara John**	SPC					
Junzo Kasahara	SPC					
Hans Christian Larsen	IODP-MI, Chair					
Mitch Malone	USIO					
David McInroy*	ESO					
Naohiko Ohkouchi*	SPC					
Mary Reagan	USIO					
Toshitsugu Yamazaki ^a	SPC					
-						

^aAlternate for Ohkouchi

*Unable to attend

**Not physically present due to weather-induced flight cancellation; was kept apprised of meeting discussion and corresponded via email

CDEX	
SPC	
MEXT	
IODP-MI	
IODP-MI	
IODP-MI	
IODP-MI	
USIO	
CDEX	
MEXT	
SPC	
IODP-MI	*** Additional SDC mambara
CDEX	selected to attend the meeting
	CDEX SPC MEXT IODP-MI IODP-MI IODP-MI USIO CDEX MEXT SPC IODP-MI CDEX

Agenda and Minutes

At the beginning of the April 2010 meeting, the attendees discussed the proposed agenda for the meeting and made several changes. The Center for Deep Earth Exploration (CDEX) requested that the CDEX report occur after the U.S. Implementing Organization (USIO) and European Consortium for Ocean Research Drilling Science Operator (ESO) reports to accommodate the arrival of Wataru Azuma. David Divins requested that the Operations Task Force (OTF) discuss scheduling options and discussion of an ambitious program together in order to take into account fiscal realities. Mitch Malone noted that he would discuss Ancillary Project Letters (APLs) and the engineering development schedule as they relate to the *JOIDES Resolution (JR)* based on discussion at the March 2010 Science Planning Committee (SPC) meeting. These items were added to the final agenda.

Minutes from the 24 March 2010 meeting were shown to all. Corrections were made and then the minutes were approved by consensus.

Proposals at the Operations Task Force

Yoshi Kawamura reviewed the proposals currently residing at OTF, both those already scheduled and those available to schedule (Fig. 1). He noted that purple shading indicated some issues with implementing the proposal, whereas yellow shading indicated potential issues. He also noted that light blue shading designated proposal forwarded by SPC in March.

OTF discussed the potential issues with some of the proposals to better understand how they would affect implementation. Several scheduled proposals still need review by the Environmental Protection and Safety Panel (EPSP). Sites were moved for Proposal 601-Full3 Add2 Okinawa Trough Deep Biosphere, so EPSP needs to clear the new sites. Eguchi noted they would request areal approval as all the sites were located very close together. Malone noted that Proposal 734-APL Cascadia Accretionary Prism CORK and Proposal 677-Full Mid-Atlantic Ridge Microbiology both need EPSP review, but Barry Katz had indicated there should be no problems with doing those reviews via E-mail.

Malone noted that Proposal 505-Full5 Mariana Convergent Margin was forwarded in 2007 and stripped of the Circulation Obviation Retrofit Kits (CORKs), so there was no CORK issue with implementing that proposal. Y. Kawamura noted that EPSP would recommend

Them	Numbers	Tytle	Schedule	Ocean	P-type/IO	SSP	EPSP	Drilling	CORK	3rd-Party	Other
1	545-Full3	Juan de Fuca Flank Hydrogeology	FY10 Exp.327	Pac	RL	1A, 1B	approved		CORK		
3+1	734-APL	Cascadia Accretionary	FY10 Exp.328	Pac	RL	3A	No review		replace CORK		ED sea test
1	662-Full3	South Pacific Gyre Microbiology	FY11 Exp.329	Pac	RL	1Aa	all site approved				
3	636-Full3	Louisville Seamounts	FY11 Exp 330	Pac	RL	1Aa	all site approved			Goettinge nMM tool	
3	537A-Full5	Costa Rica Seismogen	FY11 (partial)	Pac	RL	1Bb	all sites approved		No CORK		
3	522-Full5	Superfast Spreading Crust	FY11	Pac	RL	1Aa	approved	Deep >2,000m			
1	677-Full	Mid-Atlantic Ridge Microbiology	FY11/12	Atl	RL	3A	No review		multilevel CORK		
1	601-Full3 Add2	Okinawa Trough Deep Biosphere	FY10	Pac	RL	No review	No review	special casing			
3	603C+D (partial)	NanTroSEIZE Stage 3	FY10+11 Exp.326	Pac	RL	2A,2B	approved				
3	738-APL	Nankai Trough Submarine	FY11	Pac	RL	1Aa	approved				* as APL by SPC
Not	Schedule	ed Proposals	-	-							
2	477-Full4	Okhotsk Plio-Pleistocene		Pac	RL	1Ca	approved				Per. Russian
1	505-Full5	Mariana Convergent Margin		Pac	RL	1Bc, 2Cc	no concerns	8 holes casing	3 CORKS		
3	537B-Full4	Costa Rica Seismogen		Pac	R	No review	No review	Riser 6.000m	CORK		
2	548-Full3	Chicxulub K-T		Atl	MSP	1Aa	Pre viewed				Permit?
2	549-Full6	Northern Arabian Sea Monsoon		Ind	RL	1A	approved				
3	551-Full	Hess Deep Plutonic Crust		Pac	RL	1Aa	No review No issue	Hardrock			
2	552-Full3	Bengal Fan		Ind	RL	1Aa	approved				
1	553-Full2	Cascadia Margin Hydrates		Pac	RL	1B, 1A	approved		ACORK		LD-DP for Loa
2	581-Full2	Late Pleistocene		Atl	MSP	1A	No review	MDCB			PerMMS
2	605-Full2	Asian Monsoon		Pac	RL	1Aa	approved				Clearance
1	633-Full2	Costa Rica Mud Mounds		Pac	RL	1Aa, 1Bb	approved ROV		4 CORKs		
2	644-Full2	Mediterranean Outflow		Atl	RL	1Ba	No review				
3	659-Full	Newfoundland Rifted Margin		Atl	RL	1Aa	No review	Deep 2,120m			
2	661-Full2	Newtoundland Sediment Drifts		Atl	RL	1Bb, 2Ab	No review				
2	686-Full	Southern Alaska Margin 1		Pac	RL	1Ba,1Ca,	No review				
3	695-Full2	Izu-Bonin-Mariana Pre-Arc Crust		Pac	RL	1Ba	No review				
2	716-Full2	Hawaiian Drowned Reefs		Pac	MSP	1Aa	approved				Permit
2	724-Full	Gulf of Aden Faunal Evolution		Pac	RL	2Cc, 2Cb,	No review				Security
2	732-Full2	Antarctic Peninsula Sediment Drifts		South	RL	1Ba	No review	Non-mag			
1	693-APL	S. Chamorro Seamount		Pac	RL	3A	No review		CORK		

Figure 1. Proposals currently residing at OTF. The first ten proposals are currently scheduled. Purple boxes indicate known issues for implementing the proposal. Yellow boxes indicate potential implementation issues.

approval for Proposal 633-Full2 Costa Rica Mud Mounds, but one site would not be drillable by the JR and that one member of the panel recommended use of a remote-operated vehicle (ROV). Additionally, a safety plan would need to be in place, making this a costly expedition to implement. He also noted that Proposal 553-Full2 Cascadia Margin Hydrates included

something similar to a CORK, but that it would need to be designed by the proponents. Feary pointed out that Proposal 724-Full Gulf of Aden Faunal Evolution was in the Indian Ocean and not the Pacific. Malone noted that EPSP recommended approval of all nine sites for Proposal 605-Full2 Asian Monsoon, but that the Texas A&M University (TAMU) safety panel had some issues with three sites, which would need to be satisfied before these three sites could be implemented.

Evans noted that he thought Proposal 548-Full3 Chicxulub K-T Impact Crater had gotten preapproval from EPSP; Y. Kawamura agreed. Larsen noted the biggest concern was permitting but that the proponents were optimistic that there would be no major issues with it as they had developed collaboration with Mexican researchers. Malone asked how Proposal 659-Full Newfoundland Rifted Margin was forwarded from SPC. Feary confirmed that it was forwarded by SPC with alternate site emphasis. Malone noted that USIO operations staff thinks there is no way that they would be able to successfully re-enter and deepen Site 1276. He noted that they recommended the proponents drill a new hole, but even with drilling (not coring) that would take three or more weeks to drill and set casing to depth and cost over \$1M in casing and related hardware.

Larsen asked what the Implementing Organizations (IOs) have to say about CORKs. Malone noted that traditionally, the proponents develop and pay for the sensors and the program pays for the rest. He further added that he can make ballpark estimates of the cost to the program, but those could change substantially after talking to proponents. Larsen noted that he did not want the program to take the easy way out and say no money for CORKs; thus, it would be good to identify one or two CORK proposals that would be worth spending money on.

Larsen asked about Proposal 477-Full3 Okhotsk Plio-Pleistocene in Russian waters. Malone noted that the Russians had never responded to attempts to gain approval for drilling in the Bering Sea, despite pressure from the embassy in Russia. He indicated they had received informal notice that the Russians did not want to approve it and therefore would not respond. He added that the State Department is willing to work on it, but would take at least another year.

Proposals not at OTF that could Impact the Out-Years Schedule

One of the goals of the April 2010 OTF meeting was to develop potential drilling schedules through the end of the program to provide to the Sciecne Advisory Structure Executive Committee (SASEC) and the Board of Governors (BoG). In order to do this in the most meaningful way possible, OTF needed to consider proposals not yet at OTF but with the potential to be forwarded prior to the end of the program. This was particularly important for determining probable shiptracks for the JR.

Yoshi Kawamura showed a spreadsheet of proposals currently at SPC (Fig. 2). He noted that of eighteen proposals ranked at the March SPC meeting, ten were forwarded to OTF. Four proposals at SPC are in the holding bin and available to be forwarded to OTF once necessary data has been collected.

The OTF discussed the holding bin proposals and the likelihood that each would be available for drilling during the remainder of the program. Y. Kawamura noted that Proposal 681-Full2 Lesser Antilles Volcanic Landslides proposal was highly ranked at the March SPC meeting,

Them	Numbers	Tytle	Ocean	P-type	SSP	EPSP	Drilling	CORK	3rd-Party	Other	SPC
1	555-Full3	Cretan Margin	Med	RL	3A	No review		CORK	1	1	
2	567-Full4	South Pacific Paleogene	Pac	RL	2Ad, 3A	No review				Long transit	
1	589-Full3	Gulf of Mexico Overpressures	Atl	RL	1A	tentative approved	Blue Unit	CORK		Shell loc. Mud	
2	618-Full3	East Asian Margin	Pac	RL+R	1Aa	Previewed	i			No Chikyu	Holding bin
1	637-Full2	New England Shelf Hvdroaeoloav	Atl	MSP	2Cd, 3Bd	Previewed	i				Holding bin
3	669-Full3	Walvis Ridge Hotspot	Atl	RL	N/A	No review				GHMT	
2	672-Full3	Baltic Sea Basin Paleoenvironment	Atl	MSP	1Ba	No review					
3	681-Full2	Lesser Antilles Volcanic	Atl	RL	2Ab, 2Ac,	No review					Holding bin
3	697-Full3	Izu-Bonin-Mariana Reararc Crust	Pac	RL	1Bb	No review	Deep? 1,900m				
3	703-Full	Costa Rica SeisCORK	Pac	RL	N/A	No review		Seis- CORK			
2	705-Full2	Santa Barbara Basin C-Change	Pac	RL+R	1Ab, 1Ac	Previewed	1				Holding bin

Figure 2. Proposals currently residing at SPC. The four proposals in the holding bin are noted in the final column. Purple boxes indicate known issues for implementing the proposal. Yellow boxes indicate potential implementation issues.

but placed in the holding bin due to lack of site survey data. Divins noted that it potentially could come out of the holding bin soon as the proponents would collect new site survey data in May (to be submitted by the 15 June deadline) and therefore the proposal could be forwarded to OTF later this year. Malone noted that Proposal 705-Full2 Santa Barbara Basin Climate Change has many EPSP and TAMU safety panel issues and that unfortunately these would likely not be resolved in time for it to be scheduled before the end of the program. Evans noted that Proposal 637-Full2 New England Shelf Hydrogeology would also likely not make it out of the holding bin soon as the Site Survey Panel (SSP) requires more information. Additionally, there are cost and potential technology issues with the proposal. Malone noted that Proposal 618-Full3 East Asian Margin still needed to be cleared by EPSP; the preview indicated concern about some site locations based on the seismic. Y. Kawamura and Eguchi added that the *Chikyu* would be unable to drill in that region for political reasons. Malone noted that the State Department had been willing to try to obtain permission for drilling in this area in the past. He added that the U.S. would require permission from all countries that claimed the region.

Y. Kawamura asked if there were still issues for Proposal 589-Full3 Gulf of Mexico Overpressure. Malone noted that there were and that additional information was required that would be pursued if the proposal was forwarded to OTF. He noted that the real issue was casing the blue unit and then having to perforate the casing to open it up and whether or not the JR would be able to maintain well control.

H. Kawamura presented the proposals currently residing at Science Steering and Evaluation Panel (SSEP). He noted that there are three mature full proposals at SSEP (595-Full3 Indus Fan and Murray Ridge*, 698-Full2 Izu-Bonin-Mariana Arc Middle Crust*, 748-Full2 Nice Airport Landslide) that could potentially be forwarded to SPC for consideration in the near future. (*Note these proposals were returned to the proponents at the March 2010 SPC meeting for clarification due to significant changes in the targets.) He also noted that there were five APLs at SSEP (Fig. 3).

Proposal	Latest		Lead				
Number	Version	Short Title	Proponent	Ocean	Platform	ISP*	Initiative*
769	APL	Costa Rica Crustal Architecture	Tominaga	Рас	NR	3	3.3
727	APL	Afar Mantle Plume Dispersion	Orihashi	Ind	NR	3	3.0
766	APL	Essaouira Seamount Hotspot	Geldmacher	Atl	NR	3	3.0
768	APL	Gulf of Mexico Paleoclimatology	Flower	Atl	NR	2	2.2
772	APL	North Atlantic Crustal Architecture	Tominaga	Atl	NR	3	3.3

*ISP Themes and Initiatives:

1. The Deep Biosphere and the Subseafloor Ocean

- 1.1 Deep Biosphere
- 1.2 Gas Hydrates
- 2. Environmental Change, Processes and Effects
 - 2.1 Extreme Climates
 - 2.2 Rapid Climate Change
- 3. Solid Earth Cycles and Geodynamics
 - 3.1 Continental Breakup and Sedimentary Basin Formation
 - 3.2 Large Igneous Provinces
 - 3.3 21st Century Mohole
 - 3.4 Seismogenic Zone

Figure 3. APLs currently residing at SSEP, with the potential to be forwarded to SPC and OTF during the remainder of the current program.

IODP Coverage of Initial Science Plan Themes and Initiatives

Hiroshi Kawamura presented Excel spreadsheets of Integrated Ocean Drilling Program (IODP) expeditions already completed (Fig. 4) and OTF/SPC proposals (Fig. 5) by theme and ocean basin. There was general discussion about the classification of some proposals; those issues were fixed during the meeting. This information was used for discussion of important Initial Science Plan (ISP) themes that need to be addressed during the remainder of the program.

The beep biosphere and the subseanoor ocean									
Proposal	Latest		Lead					Exp.	
Number	Version	Short Title	Proponent	Ocean	Platform	ISP*	Initiative*	Number	
573	Full2	Porcupine Basin Carbonate Mounds	Henriet	Atl	NR	1+3	1.1	307	
739	APL	Bering Sea Subseafloor Life	D'Hondt	Рас	NR	1	1.1	323	
545	Full3	Juan de Fuca Flank Hydrogeology	Fisher	Рас	NR	1	1.0	301	

The Deep Biosphere and the Subseafloor Ocean

589	Full3	Gulf of Mexico Overpressures	Flemings	Atl	NR	1	1.1	308
553	Full2	Cascadia Margin Hydrates	Riedel	Рас	NR	1	1.2	311
477	Full4	Okhotsk/Bering Plio-Pleistocene	Takahashi	Рас	NR	2	2.1	323

Environmental Change, Processes and Effects

Proposal	Latest		Lead					Exp.
Number	Version	Short Title	Proponent	Ocean	Platform	ISP*	Initiative*	Number
482	Full3	Wilkes Land	Escutia	Sou	NR	2	2.1+2.2	318
		Margin						
519	Full2	South Pacific Sea	Camoin	Рас	MSP	2	2.2	310, 325
		Level						
543	Full2	North Atlantic	Harris	Atl	NR	2	2.2	306
		Climate 2						
564	Full2	New Jersey	Mountain	Atl	MSP	2	2.2	313
		Shallow Shelf						
572	Full3	North Atlantic	Channell	Atl	NR	3+2	2.2	303, 306
		Climate 1						
600	Full	Canterbury Basin	Fulthorpe	Рас	NR	2	2.2	317
626	Full2	Pacific Equatorial	Pälike	Рас	NR	2	2.1	320, 321
		Age Transect						
638	APL2	Adelie Drift	Dunbar	Sou	NR	2	2.2	318
533	Full3	Arctic Coring	Backman	Arc	MSP	2	2.1	302
		Expedition						
		•						

Solid Earth Cycles and Geodynamics

Proposal	Latest		Lead					Exp.
Number	Version	Short Title	Proponent	Ocean	Platform	ISP*	Initiative*	Number
512	Full3	Oceanic Core Complex Formation, Atlantis Massif	Blackman		NR	3		304, 305
654	Full2	Shatsky Rise Origin	Sager	Рас	NR	3	3.2	324
522	Full5	Superfast Spreading Crust	Teagle	Рас	NR	3	3.3	206, 309 312
603	CDP	NanTroSEIZE		Pac	R	3	3.4	314, 315 316, 319 320, 321 322

Figure 4. Proposals drilled so far during IODP by ISP theme and initiative. (Note that the coding for the themes and initiatives can be found in Figure 3 or 5.)

The Deep Biosphere and the Subseafloor Ocean

Proposal	Latest		Lead				
Number	Version	Short Title	Proponent	Ocean	Platform	ISP*	Initiative*
505	Full5	Mariana	Fryer	Рас	NR	1	1.1

		Convergent Margin					
545	Full3	Juan de Fuca Flank Hydrogeology	Fisher	Рас	NR	1	1.0
553	Full2	Cascadia Margin Hydrates	Riedel	Рас	NR	1	1.2
601	Full3	Okinawa Trough Deep Biosphere	Takai	Рас	NR	1	1.1
633	Full2	Costa Rica Mud Mounds	Brückmann	Рас	NR	1	1.0
662	Full3	South Pacific Gyre Microbiology	D'Hondt	Pac	NR	1	1.1
693	APL	S. Chamorro Seamount CORK	Wheat	Рас	NR	1	1.1
734	APL	Cascadia Accretionary Prism CORK	Davis	Рас	NR	3+1	3.4+1.2
762	APL	Grizzly Bare Outcrop Microbiology	Wheat	Рас	NR	1	1.1
677	Full	Mid-Atlantic Ridge Microbiology	Edwards	Atl	NR	1	1.1
637	Full2	New England Shelf Hydrogeology	Person	Atl	MSP	1	1.0
589	Full3	Gulf of Mexico Overpressures	Flemings	Atl	NR	1	1.1

Environmental Change, Processes and Effects

Proposal	Latest		Lead				
Number	Version	Short Title	Proponent	Ocean	Platform	ISP*	Initiative*
548	Full3	Chicxulub K-T Impact Crater	Morgan	Atl	MSP	2	2.0+1.1
581	Full2	Late Pleistocene Coralgal Banks	Droxler	Atl	MSP	2	2.2
644	Full2	Mediterranean Outflow	Hernandez- Molina	Atl	NR	2	2.2
661	Full2	Newfoundland Sediment Drifts	Norris	Atl	NR	2	2.1
763	APL	Iberian Margin Paleoclimate	Hodell	Atl	NR	2	2.2
549	Full6	Northern Arabian Sea Monsoon	Lückge	Ind	NR	2	2.2
552	Full3	Bengal Fan	France-Lanord	Ind	NR	2	2.1+2.2
724	Full	Gulf of Aden Faunal Evolution	de Menocal	Ind	NR	2	2.2
716	Full2	Hawaiian Drowned Reefs	Webster	Рас	MSP	2	2.2
477	Full4	Okhotsk/Bering Plio-Pleistocene	Takahashi	Рас	NR	2	2.1

605	Full2	Asian Monsoon	Tada	Рас	NR	2	2.2
686	Full	Southern Alaska Margin 1: Climate- Tectonics	Jaeger	Pac	NR	2	2.0
695	Full2	Izu-Bonin-Mariana Pre-Arc Crust	Arculus	Рас	NR	3+2	3.0+2.0
732	Full2	Antarctic Peninsula Sediment Drifts	Channell	Sou	NR	2	2.1
567	Full4	South Pacific Paleogene	Thomas	Pac	NR	2	2.1
757	APL	South Pacific Eocene-Oligocene	Lyle	Рас	NR	2	2.1
618	Full3	East Asia Margin	Clift	Рас	R+NR	2	2.1+2.2
672	Full3	Baltic Sea Basin Paleoenvironment	Andrén	Atl	MSP	2	2.2+1.1
705	Full2	Santa Barbara Basin Climate Change	Kennett	Pac	NR+R	2	2.1

Solid Earth Cycles and Geodynamics

Proposal	Latest		Lead				
Number	Version	Short Title	Proponent	Ocean	Platform	ISP*	Initiative*
695	Full2	Izu-Bonin-Mariana Pre-Arc Crust	Arculus	Рас	NR	3+2	3.0+2.0
522	Full5	Superfast Spreading Crust	Teagle	Рас	NR	3	3.3
537A	Full5	Costa Rica Seismogenesis Project Phase A	Vannucchi	Рас	NR	3	3.4
537B	Full4	Costa Rica Seismogenesis Project Phase B	Ranero	Pac	R	3	3.4
551	Full	Hess Deep Plutonic Crust	Gillis	Рас	NR	3	3.0
603A	Full2	NanTroSEIZE Phase 1: Reference Sites	Underwood	Рас	NR	3	3.4
603B	Full2	NanTroSEIZE Phase 2: Mega- Splay Faults	Kinoshita	Рас	R+NR	3	3.4
603C	Full	NanTroSEIZE Phase 3: Plate Interface	Suyehiro	Рас	R	3	3.4
603D	Full2	Nan Tro SEIZE Observatories	Screaton	Рас	NR	3	3.4
636	Full3	Louisville Seamounts	Koppers	Рас	NR	3	3.0
659	Full	Newfoundland Rifted Margin	Shillington	Atl	NR	3	3.1

681	Full2	Lesser Antilles Volcanic Landslides	Le Friant	Atl	NR	3	3.0
734	APL	Cascadia Accretionary Prism CORK	Davis	Pac	NR	3+1	3.4+1.2
738	APL	Nankai Trough Submarine Landslides	Strasser	Pac	NR	3	3.0
697	Full3	Izu-Bonin-Mariana Rear-Arc Crust	Tamura	Pac	NR	3	3.3
703	Full	Costa Rica SeisCORK	Brown	Pac	NR	3	3.4
669	Full3	Walvis Ridge Hotspot	Sager	Atl	NR	3	3.0



- 1. The Deep Biosphere and the Subseafloor Ocean
 - 1.1 Deep Biosphere
 - 1.2 Gas Hydrates
- 2. Environmental Change, Processes and Effects
 - 2.1 Extreme Climates
 - 2.2 Rapid Climate Change
- 3. Solid Earth Cycles and Geodynamics
 - 3.1 Continental Breakup and Sedimentary Basin Formation
 - 3.2 Large Igneous Provinces
 - 3.3 21st Century Mohole
 - 3.4 Seismogenic Zone

Figure 5. Proposals residing at SPC and OTF by ISP theme and initiative.

Discussion of Non-OTF Proposals to Consider

In order to put together the best potential schedules for the remainder of the program, OTF discussed the proposals at SPC and SSEP to determine if any should be included in the proposal pool. There was much discussion of the proposals to determine which had a realistic chance of making it to OTF and also which could address important aspects of the ISP that have not yet been addressed. Based on these discussions, the following proposals were selected for consideration when putting together possible schedules for the remainder of the program:

681-Full2 Lesser Antilles Volcanic Landslides (SPC Holding Bin) 672-Full3 Baltic Sea Basin Paleoenvironment (SPC) 595-Full3 Indus Fan and Murray Ridge (revised proposal requested by SPC) 748-Full2 Nice Airport Landslide (SSEP)

Implementing Organization Reports for Fiscal Year 10/11

CDEX Operations

During the 26 March 2010 OTF meeting, Hans Christian Larsen showed the CDEX threeyear plan for the *Chikyu*, but noted that OTF needed to focus on the schedule for the next year (Fig. 6). The tentative schedule includes a possible Shimokita Complimentary Project Proposal (CPP) (73 days) from 20 June to 1 September, Proposal 601-Full3 Okinawa Trough Deep Biosphere (47 days) from 1 September to 18 October, and the Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) from 18 October to 10 January (84 days). The CPP depends on funding becoming available, but the dates are basically fixed should it occur. The end date for operations on 10 January 2011 is also fixed because of the fishing industry.



Figure 6. CDEX three-year plan for *Chikyu* operations presented at the March 2010 OTF meeting.

Nobuhisa Eguchi presented the 2010-2011 *Chikyu* schedule at the April 2010 OTF meeting (Fig. 7), noting that it was different from what had been presented in March (Fig. 6). The Shimokita CPP had to be moved to FY11 (tentative start date March 2011) due to budget uncertainties. At the time of the meeting, the *Chikyu* was in port for maintenance, with plans to leave port on 10 June 2010.

Fiscal Year 2010 operations at Site C0002 (NanTroSEIZE Stage 3) will begin on 15 June to install the 36" conductor pipe and then drill to 800 meters below the seafloor (mbsf) and set casing (24 total days). Proposal 601-Full3 Okinawa Trough Deep Biosphere will begin on 1 September, with 32.5 days allotted to the expedition. This is not enough time to drill all sites in the proposal; operations will target coring at proposed Sites INH-1, INH-3, INH-4, and

INH-5 and casing all but the latter site. *Chikyu* operations will finish with NanTroSEIZE Stage 2 (77 days of operation), which includes installation of an observatory at Site C0002. In



Figure 7. CDEX FY10-11 plan for *Chikyu* operations presented at the April 2010 OTF meeting.

addition to drilling, casing, and installation of the observatory at Site C0002, coring will also be conducted at Sites C0011 and C0012. The expedition will end with eight days allotted to the Proposal 738-APL Nankai Trough Submarine Landslides (NanTroSlide). Should funding be secured, Shimokita CPP operations would begin on 1 March 2011. This project proposes to re-enter a hole previously drilled in 2006 (with conductor and casing already installed). The hole would be drilled to ~2150 mbsf. Total allotted time is 73 days, which includes 17.5 contingency days as the projects requires riser drilling.

ESO Operations

Dan Evans presented the ESO report and discussion of FY10-11 operations. He gave a summary of Expedition 325 Great Barrier Reef Environmental Changes (GBREC), completed on 6 April 2010. The expedition cored 34 holes at 29 sites, but had a number of challenges for a variety of reasons. He noted that average (uncorrected) core recovery was approximately 30%. The expedition was 55 days long, but included down time (not paid for) due to technical issues and a typhoon. He noted that the operational review would occur later this year. Compared to Expedition 310 Tahiti Sea Level, recovery was lower for the GBREC expedition. He also indicated that it would be difficult to correct the recovery for GBREC with the logging data collected (for four holes).

Evans noted that when looking at the Mission-Specific Platform (MSP) program, ESO really needed to consider the rest of the program, not just FY11-12. Funding levels are not certain, but ESO is assuming that the European Consortium for Ocean Research Drilling (ECORD) will fund two further expeditions. Furthermore, he noted that platform costs are imprecise and difficult to estimate until bids are tendered. The three MSP proposals currently residing with OTF having timing restrictions; Evans also noted that additional MSP proposals may be forwarded to OTF before the end of the program. He gave the following list of proposals to be considered:

- MSP Proposals at OTF
 - 716-Full2 Hawaiian Drowned Reefs
 - o 548-Full3 Chicxulub K-T Impact Crater
 - 581-Full2 Late Pleistocene Coralgal Banks
- Possible Future MSP Proposals
 - 637-Full2 New England Shelf Hydrogeology (SPC holding bin)
 - 672-Full3 Baltic Sea Basin Paleoenvironment (SPC)

• 748-Full 2 Nice Airport Landslide (SSEP)

Evans noted that these are the proposals he is aware of that may have the potential to impact the remainder of the schedule, although he noted he did not know what was submitted for the 1 April 2010 proposal deadline. Evans gave an overview of the three proposals currently residing at OTF and available to schedule.

Proposal 716-Full2 Hawaiian Drowned Reefs includes eleven holes, but some may be in water too deep for an MSP. This proposal also must be drilled in September/October due to whales in the area at other times of the year. ESO has begun scoping this proposal and early indications are positive. Evans also noted that this proposal was highly ranked. Operational review of GBREC needs to occur because currently only one contractor would offer the piggyback system applied successfully during Expedition 310 Tahiti Sea Level. The transit time would also make this a more expensive expedition.

Proposal 548-Full3 Chicxulub K-T Impact Crater has been reduced in scope because of cost concerns. The version forwarded by SPC includes two holes in shallow water, with about 1500 m of sediment penetration. Evans noted that this proposal was well ranked, ambitious, and would generate public interest. Unfortunately, it would also be an expensive project to implement. The expedition would utilize a jack-up rig, which requires a hazard site survey that would have to be completed the year prior to drilling. Evans also noted that permitting could be an issue, but since there are Mexican proponents in the group that could be helpful. Additionally, if drilling was particularly difficult, it could be hard to reach the targets in both holes. Without reaching the targets the science party would be unable to address the objectives. Larsen noted that this makes the proposal particularly risky. Evans indicated that if Chicxulub were to be included in the remainder of the program, they would first initiate permit scoping. There was some discussion of collaboration with the International Continental Scientific Drilling Program (ICDP) drilling at Chicxulub. Stein noted that there was ICDP drilling there in 2002, but they are also planning a future program that could be part of a joint program with IODP. Evans noted that although the operations would not be joint, collaboration would be good scientifically.

Proposal 581-Full2 Late Pleistocene Coralgal Banks proposes to drill five holes on Southern Bank in the Gulf of Mexico. The main timing issue with this proposal would be to avoid the hurricane season. This project would be short and inexpensive, with minimal transit, and would help to improve global sea-level curves. Of the three proposals at OTF, this would be the least ambitious and also represents more drilling of upper Pleistocene corals. Evans noted that this could be a FY13 possibility if there are limited funds available at that time.

Based on the proposals currently available, Evans presented several options for FY11 and beyond, noting that ESO would prefer to keep Coralgal Banks as an alternative for FY13 should funds be short; thus, the real question is whether to pursue Chicxulub or Hawaiian Drowned Reefs. Larsen asked if it would be possible to have either Hawaii or Chicxulub for FY12, that way if Chicxulub fell through they could implement Hawaii. Evans noted the issue with that is the hazard site survey, which is a significant expense and if completed really commits the program to drilling Chicxulub.

Y. Kawamura asked about drilling Hawaii in FY13 and if that would cause a problem as the Onshore Science Party (OSP) would occur in FY14. Evans and Gatliff noted that the drilling would actual occur in FY14 as well, but did not think that would cause a significant problem.

Larsen asked when the review of the GBREC would occur to help determine which drilling technology to use for Hawaii. Evans noted that the piggyback system would not be available for the deepest Hawaiian sites and there was some concern amongst OTF participants that those sites would contain the oldest record, thereby limiting achievement of the proposal objectives. Suychiro asked about seabed drill capabilities. Evans thought that some would have the ability to drill the Hawaiian sites, but that the technology was still experimental. Gatliff added that the larger systems would be as expensive as a drillship. Larsen noted that the proponents should be asked if the objectives would be achievable without drilling the two deepest sites.

Evans was asked to say a few words about the other non-OTF MSP proposals he had previously mentioned. He indicated that the Baltic Sea proposal was pretty standard North Sea drilling that has been done by industry for a long time. He noted that recovery could be an issue, but a lot of work had been done in both industry and Antarctic drilling to improve the technology. That proposal would also be relatively cheap if a North Sea drilling vessel could be obtained. He noted that weather would be an issue, particularly for the two northern sites, and it would therefore need to be drilled during the summer. Evans also noted that there was a lot of enthusiasm from the ECORD council for this proposal in generating funding for the new program.

Evans noted that the Nice Landslide proposal had a few issues, as one site was located basically at the end of an airport runway where a drill ship could not go. He indicated that if that site was critical and required a different drilling platform from the other sites it would make the expedition quite expensive.

Evans noted that pore-water sampling for New England Hydrogeology was challenging and that there was also a water depth issue, as two of the four sites are located in less than 20 m of water (the other two sites are in 60-70 m of water). Evans thought that likely implementation would be over two years with a jack-up for the shallow sites and a drill ship for the deeper sites, which would make this an expensive expedition. Even if all drilling could be done by one vessel, the length of time it would take to drill four holes might make it difficult to complete all four in one expedition. Evans added that the proponents also want a logging while drilling (LWD) hole, which would require a larger rig than the Lift Boat *Kayd* (used for Expedition 313 New Jersey Shallow Shelf) offered.

USIO Operations

The 26 March 2010 OTF meeting discussed site prioritization for Proposal 537A-Full4 Costa Rica Seismogenesis Project (CRISP) Phase A, which is scheduled to be drilled in FY11. The original proposal included five sites: two sites on the slope (Site 3B and 4A; tentative sites for later riser drilling, CRISP-B) and two sites on the incoming plate, and one toe-site (2A). One of the slope sites (3B) is planned to be a deep riser hole, but the other slope site (4A) is located in too shallow water for riser drilling with the *Chikyu*, and a later deep riser site would need to be located in less shallow water (min. 500 m). The OTF previously decided that the mini CRISP-A expedition (25 days) needs to be a stand-alone project since no further CRISP drilling is likely to occur before the end of the current program in 2013. The suggestion was made to drill one toe and one slope site, with the latter potentially becoming a deep riser hole in the future; however, to get subsidence history across the area, both sites on the slope would need to be drilled, but this is not realistic within 25 days including the toe site. After discussion, OTF came to the following consensus for CRISP-A site prioritization:

OTF Consensus 1003-01: Site 3B with sufficient basement penetration (TBD pre drilling) to characterize basement and its fluid regime is the highest priority, and should be conducted first. If time remains to recover the full sediment section at Site 4A, this would be second priority. If remaining time is insufficient to drill Site 4A, and pending number of days left, further deepening of Site 3B might be considered as a contingency plan. Only in the case that LWD is an option, or if both sites 3B and 4A have been completed (i.e., additional expedition time), would the toe site 2B be a priority.

Another issue discussed at the 26 March meeting were logging options for CRISP-A. Alberto Malinverno presented five options:

- 1. \$750k TeleScope + EcoScope + GeoVISION resistivity + SonicVISION. This is a full suite of tools that collects real-time data.
- 2. \$450k TeleScope + EcoScope. This includes real-time pressure measurement, plus collection of resistivity, porosity, gamma ray, and density data, and could be done while drilling the first hole.
- 3. \$300k GeoVISION + SonicVISION. This collects resistivity, gamma ray, and velocity data in memory, but has to be done on the second hole as the first hole has to be monitored for hydrocarbons.
- 4. \$300k GeoVISION + adnVISION. This collects resistivity, gamma ray, density, and porosity data in memory, but has to be done on the second hold as the first hole has to be monitored for hydrocarbons.
- 5. \$200k LWC (RAB-8). This is a LWC engineering development system that has been used before. It collects resistivity and gamma ray as memory data and would be done on the last hole.

The OTF noted that Option 1 is too expensive and that Options 3 and 4 are too risky because of possible time constraints for drilling a second hole. After discussion it was decided that the first priority is to get the first hole (Site 3A) to basement and then the second site would depend on how much time was left. If there is time then logging Option 2 (\$450 k) would be best. It was also noted that in order to complete a vertical seismic profile (VSP), the hole would have to remain open, which would require casing. As that is too expensive, a VSP is not feasible.

At the April 2010 meeting, Mitch Malone presented the upcoming schedule (FY10 and 11) for the *JR*. Figure 8 shows the current FY10 schedule, with expeditions already completed in green. At the time of the meeting, the *JR* was in a maintenance period, during which a number of issues would be addressed based on feedback from scientists during the last six expeditions (including upgrade of IT and science applications, including the Laboratory Information Management System (LIMS) database, elevator maintenance, floor replacement in the core-splitting room, and modifications in the core description lab).

	Exp.		Total Days	Co-Chief
Expedition	#	Dates	(port/at sea)	Scientists
Shately Rise	324	4 Sep 4 Nov 2000	61 (5/56)	W. Sager
Shatsky Kise	524	4 Sep. – 4 Nov. 2009	01 (3/30)	T. Sano
Contorbury Dogin	217	4 Nov. 2009 – 4 Jan.	61 (5/56)	C. Fulthorpe
Canterbury Basin	517	2010	01 (3/30)	K. Hoyanagi
William Land	210	4 Ian 0 Mar 2010	64 (5/50)	C. Escutia
wrikes Land	518	4 Jan. – 9 Mař. 2010	04 (3/39)	H. Brinkhuis

Transit/Maintenance		9 Mar. – 5 July 2010		
Juan de Fuca	327	5 July – 4 Sep. 2010	61 (5/56)	A. Fisher T. Tsuji
Cascadia CORK	328	4-18 Sep. 2010	15 (5/10)	E. Davis
Transit		18 Sep. – 8 Oct. 2010	20 (2/18)	

Figure 8. FY10 expedition schedule for the *JOIDES Resolution*.

Malone also presented the FY11 schedule (Fig. 9), noting that NSF has indicated that without cost savings in the current program, the LWD for CRISP-A would not be possible. Another issue concerns Proposal 677-Full Mid-Atlantic Ridge Microbiology, as these CORKs may require running 4.5" fiberglass casing to house the sensors, which has been done before by industry. The proponents were well funded for the CORK activity; however, because the price of steel has gone up since the cost estimates were submitted in 2008, the difference in cost will become a program expense.

	Exp.		Total Days	Co-Chief
Expedition	#	Dates	(port/at sea)	Scientists
South Pacific Gyre	329	8 Oct. – 12 Dec. 2010	65 (4/61)	S. D'Hondt F. Inagaki
Louisville Seamount	330	12 Dec. 2010 – 11 Feb. 2011	61 (5/56)	A. Koppers T. Yamazaki
Transit		11 Feb. – 15 Mar. 2011	32 (5/27)	
CRISP A	TBD	15 Mar. – 16 Apr. 2011	32 (4/28)	P. Vannucchi K. Ujiie
Superfast	TBD	16 Apr. – 19 May 2011	33 (2/31)	D. Teagle B. Ildefonse
Non-IODP		19 May – 18 Sep. 2011		
Mid-Atlantic Microbio	TBD	18 Sep. – mid-Nov. 2011		K. Edwards W. Bach

Figure 9. FY11 expedition schedule for the JOIDES Resolution.

NanTroSEIZE Project Management Team Comments to OTF

Yoshi Kawamura presented that last Project Management Team (PMT) consensus from December 2009. At that time they developed a plan for NanTroSEIZE Stage 3. They indicated a target start date of 1 June 2010, with an unknown duration of drilling. Stage 3 would begin with top hole drilling at Site C0002 (3 weeks). If the blowout preventer (BOP) could be deployed at that time, then riser drilling would begin. If the BOP could not be deployed, then the contingency plan included: replacing the smart plug at Site C0010 with a genius plug; Hydraulic Piston Coring System (HPCS) coring with the advanced hydraulic piston corer temperature tool (APCT3) for temperature measurement at subduction input Sites C0011 and C0012; work on Site C0002 riserless observatory preparations and setting smart plug; coring basement at Site C0012; and slope and basin NanTroSlide sites.

Y. Kawamura noted that CDEX had conducted external safety reviews for riser drilling and based on those decided it would not be possible this year. He received a new operations plan from CDEX and completed an email discussion with the NanTroSEIZE PMT. They approved the overall plan to conduct the following: top hole drilling at Site C0002 (non-expedition mode) and riserless drilling over a 77-day period (including emplacement of monitoring

instruments in cased holes at Sites C0002 and C0010, temperature gradient and piston coring at Sites C0011 and C0012, possible basement coring at Site C0011, and NanTroSlide APL Site NTS-1A), with the order and priority to be determined by scientific need and operational considerations.

Y. Kawamura explained that the top hole drilling at Site C0002 was entirely engineering and therefore did not require a large science party. Most likely the team would consist of one or two scientists and an expedition project manager (EPM). Larsen asked if national offices could send someone for educational purposes to observe the operations. Eguchi indicated that this should be possible. Y. Kawamura noted that the monitoring equipment was still under discussion and that the Long-Term Borehole Monitoring System (LTBMS) is still under consideration and will go ahead if milestones set by the PMT and IO are met over coming months. He indicated that the next PMT meeting is scheduled for 15-17 June at MARUM in Bremen, Germany.

Masaoki Yamao presented the *Chikyu* three-year plan for NanTroSEIZE. In this plan, the top hole of the deep riser site would be completed in FY10, followed by drilling to 4000 mbsf and setting of the 16" and 13-3/8" casing. The remainder of the hole would be drilled to 7000 mbsf in FY12, with the 11-3/4" and 9-5/8" casing set. The LTBMS would be installed in FY13. He noted that this plan is tentative and could change due to available budget. Malone asked about the sidetrack shown in FY12 and Yamao indicated that for safety purposes they would like to drill to total depth (TD) first. He added that the depth of the hole is the biggest challenge.

Yamao also discussed the Kuroshio Current issues, showing diagrams illustrating the formation of a vortex behind the riser pipe when the current hits it, creating vortex-induced vibrations (VIV). CDEX has been working to develop methods to mitigate this issue and has developed devices that can be installed on the riser pipe to reduce the vibration and allow for drilling in high current velocities. They plan to do long-term in situ current measurement at Site NT3-01 to help develop a real-time riser VIV monitoring system to detect unexpected behavior. Additionally they can use this data to modify the riser pipe to prolong fatigue life (estimates indicate the riser can withstand >600 days of operation in high currents with this system). Yamao noted that the current is not stable and can change significantly throughout the day, making mitigation of VIV very important. He indicated that the critical interval is during deployment of the riser and that prior to the VIV study they would not have been able to begin operations if the current was greater than 2.5 or 3 knots (and it frequently is). Larsen agreed that the VIV study was important for operational stability and added that he also sees the VSP as important and asked if there would be 3rd party support for it. Eguchi indicated that CDEX has been trying to gain that.

Broad Scientific Priorities before the End of IODP

Gabe Filippelli noted that there are seven golden spikes (from the ISP) that should be accomplished before the end of the current program. These are:

- Monsoons Gabe noted that a Monsoon Detailed Planning Group (DPG) had made recommendations that have not been implemented yet.
- Microbiology and fluid flow this should be accomplished with upcoming scheduled expeditions.

- Crustal structure and geochemistry in slow to fast spreading ridges some of this has been addressed, although not all; for instance, deeper ('Mohole') objectives have not been achieved yet.
- Sea level this has been the focus of many expeditions.
- Extreme climate glacial/interglacial variability covers one part of this topic, but there have been fewer expeditions that address deep extreme environments and that Proposal 661-Full2 Newfoundland Sediment Drifts would address this (as does Expedition 318 Wilkes Land, which was just completed).
- Continental breakup there has been little work done in this area.
- Tectonics and climate the program has done almost nothing during the program, yet there are many proposals in the system that would touch on this, including 681-Full Southern Alaska Margin 1: Climate-Tectonic and 549-Full6 Northern Arabian Sea Monsoon.

In addition, Filippelli noted that the connection between hominin evolution and climate is a great new opportunity, but would likely not be heavily addressed during the remainder of the program. He added that the above goals represent *JR* and MSP operations; the *Chikyu* must-have experiment before the end of the program is NanTroSEIZE. Larsen asked about geohazards in general. Filippelli noted that NanTroSEIZE addresses geohazards and that he also thinks hydrate proposals touch on this topic. He added that there are a couple of potential proposals that would further address geohazards.

Filippelli noted that of the above listed golden spikes, the ones that have not been addressed or that need to be further addressed during the remainder of the program are: monsoons, extreme climate (deep time), and tectonics and climate.

Stein added that he sees the Arctic as an area that needs to be further addressed, but probably as part of the future program. He noted that the Intergovernmental Panel on Climate Change (IPCC) mentions the Arctic a lot, yet the only proposal drilled in the Arctic during IODP was Expedition 302 Arctic Coring Expedition (ACEX). Filippelli agreed with Stein that the Arctic is an important topic; he also agreed that it would be unlikely to be addressed prior to the end of the current program.

Must-Have Experiments before the End of IODP

Larsen asked if there were any must-have experiments that should be included prior to the end of the current program, noting that there are a number of CORK proposals at OTF. Filippelli noted that SPC has seen CORKs as an issue for a long time and that more should be included on the schedule. Larsen asked for opinions on which available CORK proposals should have highest priority.

There was discussion of the available CORK proposals. Rudy noted that Proposal 633-Full2 Costa Rica Mud Mound proponents had cut the proposal down to three sites so that it would only take 3-4 weeks and that they would also have money for the CORKs. Malone asked if that included finances for instrumentation of the CORKs; Stein did not know. Malone noted that he was unaware of the proponents scaling back the program. Stein indicated it was in a prioritization documents. Mitch noted that for Proposal 553-Full2 Cascadia Margin Hydrates the USIO would need to discuss with the proponents what they want in terms of CORKs to determine a cost estimate. Malone further noted that although Proposal 505-Full5 Mariana

Convergent Margin proposal originally included CORKs, SPC forwarded it to OTF as a coring-only proposal and he did not think anything had changed in that regard.

Based on this discussion, Larsen indicated there were really two options for CORK expeditions: Costa Rica Mud Mounds and Cascadia Hydrates, but both need further scoping. Malone indicated the USIO needed OTF to determine which would have priority; although it might be possible to scope both, one was more realistic. Filippelli indicated he thought Cascadia Hydrates would have higher priority as it is much better integrated with a global problem. Malone added that this would also complete Cascadia, which has already been drilled but still needs CORKs.

Larsen indicated that with no objections, OTF would ask the USIO to begin scoping Cascadia. Additionally, he also asked Stein to contact the Costa Rica Mud Mounds proponents for further information about the required CORKs and time estimates so that some initial scoping can be done for that proposal. Feary asked about monitoring while drilling (MWD) for Cascadia. Malone noted that the holes had already been drilled so there would be no issues; however, this would be an issue for Costa Rica Mud Mounds. He indicated that EPSP wanted the operator to work up a safety program for drilling there and that MWD would be needed, which would add significant cost to the program.

Development of Proposed Drilling Schedules through End-of-Program

The main task at the April OTF meeting was to devise proposed drilling plans for each of the platforms through the end of the program. These schedules would be forwarded to SPC for comment and then sent on to SASEC and the BoG, per the following:

SASEC Consensus 1001-04: SASEC requests that SPC/OTF develop and present to SASEC in June 2010, a small number of alternative drilling schedules for the remainder of IODP through 2013 that incorporate the highest priority science to be completed before the end of the program.

The first-order guiding principle for recommending expeditions for scheduling by 2013 should be scientific excellence, and a very high likelihood of having a major scientific impact in an ISP theme or initiative.

Other guiding principles, consistent with the 2008 SASEC Implementation Plan for IODP Expeditions 2008-2013, include:

- Accomplishing the best and most exciting science consistent with the program's resources
- Demonstrating an integrated and interdisciplinary approach
- Meeting objectives of high societal relevance.

In developing the alternative scheduling scenarios, SPC/OTF should:

1) Review and evaluate how well each theme and initiative of the Initial Science Plan has been addressed to date, what specific questions have been answered, and what specific questions remain; 2) Identify which proposed drilling projects that are mature enough to be scheduled between 2011 and 2013, could make a significant contribution to accomplishment of a major ISP theme or initiative, thereby helping build the case for renewal;

3) Consider from a strategic perspective which proposed drilling projects should be part of the drilling schedule to best position IODP for its successor program.

It is important to note that the developed drilling schedules below are proposed only and in no way part of an annual program plan (APP), which will be developed later this year and approved at the August SPC meeting.

CDEX Proposed Drilling Schedules

Masaoki Yamao presented the CDEX three-year plan for *Chikyu* drilling (Fig. 10), noting that there were several plans dependent on how much money was available, but CDEX hopes to be able to implement Plan A.

Calendar Year		2010			20	011			20	12			2013	
	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
US Fiscal Year	FY	′10		FY	′ 11			FY	′12			FY	′13	
JP Fiscal Year		H22			H23		H		24		H25			
NanTroSEIZE (C0002)														
Top Hole (Set 20"CSG)														
								<u></u>						
Set 16" & 13-3/8" CSG														
Drill /Set 11-3/4"&9-5/8"CSG														
				~~~~~										
NanTraSEIZE Others														
												~~~~~		
Okinawa Hot Biosphere		*****				*******		•••••						
Shimokita CPP													•••••	
				• • • •		* - • • - • • • • •							•••••	

Figure 10. The CDEX three-year plan for *Chikyu* drilling.

Plan A: Drill Site C0002 to 4000 mbsf, continuing to 7000 mbsf in 2012, with eight months of continuous riser operation at that time. The government indicates there are enough funds for five months of operation, so CDEX hopes to have some non-IODP work in 2011, including a possible gas hydrates project with the Japanese government.

Plan B: If there is not enough money available, then there would be five months of riser drilling in 2012, with three additional months in 2013 (feasible at the current funding level).

Plan C: If available budget is reduced, the total drilling depth for Site C0002 would be reduced to 5500 mbsf, hopefully reaching the splay-fault interval.

Larsen noted that Plan A was the bold plan and asked if there were any options for A+ (doing more if possible). Yamao noted it depended, but didn't think it was likely as drilling to the target depth in the deep hole in eight months was optimistic (based on the current estimate it will take a little longer than that). Furthermore, without non-IODP work it is unlikely that there would be enough money to complete the project. Yamao added that the observatory (LTBMS) to be installed in the deep hole would be very expensive and that further discussion

needed to occur about how to install it in a high temperature and pressure environment. There was some discussion of possible IODP collaboration on the hydrates project, but that it seemed unlikely as the project was an industry development and that research on it had already been completed. Based on this discussion, OTF concluded that Plan A would be the optimal plan.

Filippelli noted that SPC has been hearing disappointment from the community that *Chikyu* has not ranged more widely and that he is worried that the community may be unwilling to submit proposals to the new program. Larsen agreed that this is also a concern in Japan and that the three-year plan included planning activities for the future Mohole and CRISP-B. He thought this information would be very important to get out to the community.

ESO Proposed Drilling Schedules

Dan Evans presented three possible MSP options for the remainder of the program (Fig. 11). He pointed out that to implement Proposal 548-Full3 Chicxulub K-T Impact Crater, a hazard site survey necessary for using a jack-up rig would be required the year prior to drilling (e.g., survey during FY11, drilling in FY12). He noted that there could be more options available during FY13 if one or more new MSP proposals were forwarded to OTF before then. He also noted that unused funds are carried over from year to year, but the OSPs necessary for MSP drilling represent a significant expense.

	Option L	Option M	Option N
FY11	Hawaii	Hazard site survey for Chicxulub	Coralgal Banks
FY12	Hazard site survey for Chicxulub	Chicxulub	Hazard site survey for Chicxulub
FY13	Chicxulub OR Coralgal Banks OR Other	Hawaii OR Coralgal Banks OR Other	Chicxulub OR Hawaii OR Other
Pros	• Ambitious end to program if Chicxulub in FY13	 Will allow time for MSP funds to build for FY12 Expedition Leaves choice of Expeditions (of varying expense) for FY13 More time to explore coring method, inc. seabed drills, for Hawaii if chosen for FY13 	 May be cheapest option by committing to Coralgal Banks
Cons	• Not much time for appraisal of coring technique in light of	• No flexibility if platform unavailable in FY12	May be least ambitious option by committing to Coralgal Banks

 in FY11 Possibly too expensive to do both Hawaii and then Chicxulub in FY13 (decision needed in FY11 for hazard survey) 	
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Figure 11. Options for MSP implementation during the remainder of the program.

During discussion, it was noted that Proposal 581-Full2 Late Pleistocene Coralgal Banks was the least appealing of the possible MSP options currently available at OTF as it does not address new scientific questions and could be viewed as drilling more of the same. Other important information discussed included drilling technology for the deeper targets for Proposal 716-Full2 Hawaiian Drowned Reefs and whether or not those would be drillable in FY11. Evans noted that it was difficult to say whether this would be possible until ESO could speak with contractors. Larsen suggested asking the proponents if a limited water depth (i.e., not drilling the deepest sites) would affect the ability to meet the scientific objectives. Discussion also touched on the feasibility of drilling Chicxulub. Evans thought that a hazard survey would be possible in FY11, noting that this was just a requirement for using a jack-up rig and would be unlikely to discover a problem that would prohibit drilling. The difficulty is the survey is a requirement for using a jack-up rig and could cost a significant amount of money (up to or more than \$0.5M). The survey also has a limited shelf life, so drilling would have to commence within a couple of years of the survey or a new one would be required. Gatliff noted that the biggest issue was obtaining a drilling permit, which is normally handled by the contractor; however, discrete inquiries could potentially be made first. Larsen also reminded everyone of the discussion the previous day that if Chicxulub does not reach the drilling targets then the objectives would also not be reached, making it a more risky proposal. Furthermore, as it is likely to be an expensive option; thus, the other MSP proposal would have to be low in cost for the program to be able to afford to drill two during the remainder of the program. There was some discussion of implementing the Chicxulub proposal in concert with anticipated ICDP drilling; however, considering Chicxulub was highly ranked at the SPC meeting, it was decided that it should not be dependent on this.

Larsen asked if everyone agreed that in terms of the APP, Hawaii and Chicxulub were the top priorities. Filippelli disagreed, noting that it was difficult to look into the future as to what might become available, but thought that Proposal 672-Full3 Baltic Sea Basin Paleoenvironment would have good potential, as might Proposal 748-Full2 Nice Airport Landslide (residing at SSEP). Stein agreed that Baltic Sea, if forwarded to OTF, would be a high candidate. Based on this discussion, Larsen noted that there was reluctance to accept Hawaii and Chicxulub as the most important MSPs to be implemented during the remainder of the program. Evans noted that it was not necessary to decide on a proposal for FY13 and that it could be left open for future discussion. Evans thought that either Option L or M would be the priority, although he pointed out that completing Hawaii in FY11 could make it difficult to complete Chicxulub within the current program. Gatliff thought the best bet would be to work on initial steps for both proposals to give flexibility. Y. Kawamura noted that Option M would give the most flexibility to the program. Evans added that because of when

Hawaii would have to be drilled, it would occur partially in FY12, potentially causing cashflow issues.

Based on the discussion, Larsen asked for consensus for Option M, but with the possibility of drilling Chicxulub, Hawaii, or other during FY12, noting that this option allows for more flexibility during the remainder of the program. This was agreed upon by consensus.

USIO Proposed Drilling Schedules

Mitch Malone presented the options for JR scheduling through the end of the program, noting that the USIO started by looking at JR logistical issues for drilling. Each schedule also had to take into account weather windows. He noted that the potential schedules include Proposal 681-Full2 Lesser Antilles Volcanic Landslides, which is currently in the holding bin at SPC, to be forwarded to OTF once additional site survey data becomes available (later this year). The potential drilling schedules for FY12 are presented in Fig. 12.



Figure 12. Possible FY12 drilling schedules for the *JOIDES Resolution*, developed by the USIO prior to the April 2010 OTF meeting.

Malone noted that option 1 for FY13 (Fig. 13) was the most expensive and that the USIO would probably need to begin working on it now in order to implement the two CORK expeditions. He also noted that NSF would be highly unlikely to have enough extra funding to implement two CORK expeditions in the same fiscal year unless there is external funding. Malone indicated that the non-IODP periods were scheduled around weather windows for the expeditions; for instance, the western Pacific non-IODP window is designed to avoid the typhoon season. He added that the USIO is very limited in what they can do with the proposals available at OTF and that they will be losing a lot of time to long transits.

Larsen asked if Malone considered going from the Mediterranean into the Indian Ocean. Malone responded that this would result in a lot of time lost to transit to drill the two available Indian Ocean proposals. He pointed out that some options do include drilling in the western Pacific, and added that unless OTF wants to commit to drilling Costa Rica Mud Mounds, none of the options for FY13 need to be committed to now and that more proposals may be available from SPC in the future.

There was extended discussion about the possible schedules for FY12, during which other possibilities were proposed. Malone noted that Options 1 and 2 include a full year in the Atlantic Ocean, whereas Options 3 and 4 include only a short stay in the Atlantic with a Pacific shiptrack in FY13. Filippelli noted that he did not think Proposal 551-Full Hess Deep Plutonic Crust was included in the list of must-do proposals by the end of the program. Malone agreed, but added that it is well-located for shiptracks and also not an expensive expedition. H. Kawamura noted that during the SPC thematic review Donna Blackman hadlisted Hess Deep as the second priority, with the first priority being drilling in seismogenic zones (e.g., NanTroSlide, Lesser Antilles, IBM, and Hess Deep). Malone indicated that Proposal 695-Full 2 Izu-Bonin-Mariana Pre-Arc Crust would be more expensive because of casing. Larsen noted that IBM would fill a gap in the program and that it was also a highly ranked proposal, given five stars by SSEP and ranked second at the March SPC meeting.



Figure 13. Possible FY13 drilling schedules for the *JOIDES Resolution*, developed by the USIO prior to the April 2010 OTF meeting.

There was some discussion of Proposal 659-Full Newfoundland Rifted Margin proposal, which SPC forwarded to OTF with alternate site emphasis. There was some concern that the

proponents would feel that only drilling the alternate sites would affect the science. Filippelli noted that SPC only wanted the alternate sites drilled and Malone added that the TAMU staff thinks it would be impossible to re-enter Site 1276. Stein noted that this proposal would be the only one to address continental breakup, which is part of the ISP.

Evans asked about the non-IODP windows and if those dates were fixed or flexible. Divins noted that they would have to use a flexible approach; the National Science Foundation (NSF) wants cost savings, so if the window has to move to accommodate this then the USIO will have to do it. He added that ideally they would find something that works with the IODP drilling schedule. There was some concern as to whether or not OTF could create potential schedules if non-IODP work could change them. Divins indicated that OTF should consider the non-IODP work as a maintenance period for the purposes of scheduling. Malone added that if they let the non-IODP window drive the schedule then nothing would ever be scheduled. Y. Kawamura asked if the non-IODP window could be divided into two. Malone responded that this would basically guarantee no non-IODP work and that the ship would be tied up for a maintenance period.

There was further discussion of the two Newfoundland proposals. Larsen asked how enthusiastic SPC was about Proposal 661-Full2 Newfoundland Sediment Drifts. Filippelli replied that they were very enthusiastic about it as it would be a nice complement to the Pacific Equatorial Age Transect (PEAT) cruises. Larsen then asked how many alternate sites were proposed for Newfoundland Rifted Margin. Malone responded three. Larsen noted that a lot of objectives could be addressed by drilling just two sites, in which case could it be combined with Newfoundland Sediment Drifts? Malone indicated that if a full science party could be put together to cover both expeditions that it would save money going to port to change the science party. John agreed that Newfoundland Rifted Margin was only of interest if drilling the alternate sites, but also thought that it would be important to drill (not core) the top part of the hole as that has already been recovered. Malone noted that was possible, but would be expensive since the hole would have to be cased. Larsen added that it would be great to get a basement sample from one or two sites, but that this goal should not drive the shiptrack.

There was much discussion about Proposal 681 Full2 Lesser Antilles Volcanic Landslides and 551-Full Hess Deep Plutonic Crust. Malone noted that the *JR* has never drilled in the Lesser Antilles and that there is concern about recovery, although the proponents indicate that the debris flows will be lithified, which would be better for recovery. Despite this, there is still a lot of concern about drilling this proposal. Feary noted that it would touch on the hazards theme in the ISP; Larsen agreed, but noted that both Lesser Antilles and Hess Deep are risky. Kasahara suggested combining Lesser Antilles and Hess Deep, with drilling to begin at the former. If recovery was poor then the expedition could move to Hess Deep sooner.

Larsen noted that OTF was going to have to decide how long to stay in the Atlantic. He also commented that Proposal 633-Full2 Costa Rica Mud Mounds and 553-Full2 Cascadia Margin Hydrates together could potentially be the length of one regular expedition. Evans pointed out that it would be a shame to not drill more of the Atlantic proposals while the ship is in that Atlantic.

Malone showed a new FY12 Option 4 (Fig. 14), with Cascadia before Proposal 686-Full Southern Alaska Margin 1: Climate-Tectonics. Based on this revised option, Filippelli

suggested following South Alaska with Proposal 605-Full2 Asian Monsoon, 695-Full2 IBM Pre-Arc Crust, and 552-Full3 Bengal Fan, which would address climate-tectonics linkages in the ISP and would also make headway into the Asian Monsoon. Larsen added the IBM is arc crust, which has also not been well-addressed in the current program. Feary further noted that the ship has not drilled in the Indian Ocean during IODP. Malone indicated that he had not calculated the operation versus transit days for the new combination, but that it would have higher transit days compared to some of the other options. He also noted that the length of Cascadia was not known and just an estimate.

Larsen suggested that an ambitious schedule could include Lesser Antilles in one of the non-IODP windows if money could be found. Divins noted that the money would have to be raised in FY11 and did not want to include it on the schedule if it was unlikely to happen. This led to discussion of how ambitious OTF could be when asking NSF for additional funds. Divins also noted that the USIO did not have adequate staffing for 12-month operations.



Figure 14. Revised Option 4 for FY12, switching Cascadia and South Alaska so that the former would be implemented during a better weather window.

Stein suggested that Option "4B" could package Costa Rica Mud Mounds and Cascadia into a single expedition if the proponents for the former proposal agreed it could be done in 3-4 weeks and for less cost. Larsen added that they would only need two extra weeks of operations to be able to do that. He further noted that if the proponents have funding for CORK instrumentation it could be very compelling. Larsen asked if others felt that putting both on the schedule now would raise expectations in the community. Divins noted that this was also his concern; if one expedition had to be removed from the schedule, which one would it be? Larsen noted that based on discussion, Cascadia would have priority. Divins indicated that he would have to get confirmation from NSF if this would be possible. Malone added that third-party support would likely be necessary to do two CORK expeditions backto-back. He further noted that they would have to be separate expeditions with a port call in between. Larsen indicated that this would help to get the message out to the funding agencies and proponents that observatory science is important. For an ambitious plan, Larsen also suggested adding an asterisk after Proposal 644-Full2 Mediterranean Outflow indicating that Hess Deep would be drilled if money was available.

Filippelli noted that the options currently being discussed would not include many proposals addressing the solid Earth. Larsen noted that IBM in FY13 is a solid Earth proposal, as is Hess Deep if it is drilled in FY12. Evans asked if there had been a push for addressing

continental breakup. Filippelli said he has not heard any and that the solid Earth investigators are looking specifically at drilling into the crust.

Larsen summarized the option proposed for FY12: Use the new FY12 Option 4 (Fig. 14), with Cascadia and South Alaska reversed. Additionally, two weeks would be taken from the end of the non-IODP work to add Costa Rica Mud Mounds to Cascadia. Finally, an asterisk would be added to Mediterranean Outflow to indicate that if funding was available that an additional expedition (e.g., Hess Deep or Lesser Antilles) would be added to take advantage of the long transit time. It was noted that although the total transit time would not change, it would make a better science/transit ratio.

Divins indicated that this would be putting a lot of pressure on NSF; they would love to have twelve months of operation. He added that reducing the non-IODP window significantly would make it difficult to look for non-IODP work. Larsen noted that he had talked to Jamie Allan about how ambitious the OTF should be and that Allan had indicated that they should be ambitious, but not too much. Divins replied that the thought adding Costa Rica Mud Mounds and Cascadia CORKs was ambitious enough as that would be adding a minimum of \$3M to add an extra expedition.

There was additional discussion about leaving the Atlantic after just two expeditions as that would be skipping some very interesting proposals. Filippelli noted that the FY13 schedule would not be set and that if more interesting proposals come forward before then, the proposed shiptrack could change.

After this discussion, Larsen revised the option proposed for FY12 to Option 4 with South Alaska and Cascadia reversed. Additionally, two weeks would be taken from the end of the non-IODP work to add Costa Rica Mud Mounds to Cascadia (Fig. 15). This schedule was agreed upon by consensus of the group¹.

FY12					
Mid-Atlantic Mbio	Med Outflow (includes APL 763)	Non-IODP	Transit	Cascadia* and Costa Rica Mud Mounds†	S. Alaska

*Cascadia needs scoping to define CORKs, cost, and time estimate.

+Costa Rica Mud Mounds requires scoping for CORKs and a safety plan developed by the operator. If budget allows for only one proposal to be implemented, the proximity of Cascadia to the Neptune cable provides an impetus to make this the first priority in order to establish a real-time, subseafloor observatory. If both expeditions are implemented, a port call would likely be necessary between the two. The necessary 3rd party funding of the CORK instrumentation is not yet in place for either Cascadia or Costa Rica Mud Mounds. IODP operational funds required to imlement the CORK instrumentation are non-trivial and may make it difficult to accommodate both within realistic budget scenarios.

= Portcall
 = Transit to and from operational area (less than 4 days not represented)
 = Operations (includes transit between sites)
 = Scheduled
 Dates and times are approximate

Figure 15. FY12 possible schedule for the JOIDES Resolution, agreed upon by consensus during the April OTF meeting. Note that this does not represent the FY12 APP.

¹ Discussion after the April OTF meeting indicated that the USIO was not in agreement with this proposed schedule. See Appendix A for a brief review of subsequent discussions.

Discussion then returned to FY13 options (Fig. 13). There was further discussion about other western Pacific and Indian Ocean proposals. Malone noted that three sites for Proposal 605-Full2 Asian Monsoon will need further review to get TAMU safety panel concurrence. He added that there are a total of nine sites in that particular proposal. Larsen asked why Proposal 549-Full6 Northern Arabian Sea Monsoon had not been included in any of the potential schedules. Malone noted that it was too far away and that currently there are only two ready-to-schedule Indian Ocean proposals at OTF. Filippelli noted that Options 3 and 4 during FY13 would make substantial headway in addressing the Asian Monsoon, which is important for addressing climate-tectonics linkages in the ISP.

Larsen noted that discussion about FY12 had led to a new possible (Option 6) schedule for FY13, which would begin with Asian Monsoon, followed by a non-IODP period, IBM, and 552-Full3 Bengal Fan. He suggested targeting the non-IODP period for additional possibilities for an ambitious schedule, as was done for FY12. Divins indicated he thought it would be okay to leave it open, but possibly list a few options. He added that he did not think Proposal 724-Full Gulf of Aden Faunal Evolution should be included as that proposal is logistically impossible due to security issues. Larsen suggested that Arabian Monsoon or Proposal 595-Full3 Indus Fan and Murray Ridge would be possible options then. Feary added that additional proposals may be forwarded to OTF prior to finalizing the FY13 schedule. Divins noted that OTF should not include anything on the possible schedule that is not already at OTF and therefore suggests using a question mark to indicate other proposals may be available. Malone noted that there would be a better weather window if Asian Monsoon was moved after the non-IODP period and corrected the figure (Fig. 16).



Figure 16. FY13 possible schedule for the JOIDES Resolution, agreed upon by consensus during the April OTF meeting. Note that this does not represent the FY13 APP.

Larsen noted that since the non-IODP period for FY13 follows the South Alaska expedition, that the ship could stay in the eastern Pacific during the non-IODP period, leaving more flexibility for FY13. Filippelli added that SPC and others had an impression that there were a backlog of proposals to be scheduled at OTF, but that was not the case. Additionally, with the proposals at OTF being scattered all over the world, it made putting together ship tracks very challenging.

Larsen asked for consensus on the Option 6 schedule for FY13 (Fig. 16), and with no disagreements that option was agreed to by consensus.

Review of Expeditions Included on the Potential Schedules

Yoshi Kawamura went through the list of proposals included on the potential schedules developed during the April meeting to identify any implementation issues. The following proposals were discussed:

677-Full Mid-Atlantic Ridge Microbiology: Further site survey data is required, but should be available and submitted prior to the 15 June 2010 deadline; Malone noted that they are using a 3rd party grant for the CORK, so that should not cause any issues

644-Full2 Mediterranean Outflow: This proposal still requires an EPSP review.

763-APL Iberian Margin Paleoclimate: There should be no issues with this proposal. Malone noted that the proponents asked that it not take time away from the Mediterranean Outflow expedition, but that is not how APLs are implemented.

633-Full2 Costa Rica Mud Mounds: This proposal requires scoping for CORK issues. Additionally EPSP indicated that the operator would need to develop a safety monitoring program, which for the *JR* will require MWD.

553-Full2 Cascadia Margin Hydrates: This proposal requires scoping for CORK issues.

686-Full Southern Alaska Margin 1: Climate-Tectonics: No review has occurred (EPSP will need to review), but there are no known issues.

695-Full2 Izu-Bonin-Mariana Pre-Arc Crust: This proposal will require casing, which will have some cost associated with it, but should not be a problem. This proposal still needs to be reviewed by the TAMU safety panel

605-Full2 Asian Monsoon: There are some internal operator safety issues and this will have to be discussed with the proponents. In addition, there could be some permitting issues, as the U.S. will have to get permits from Korea, Japan, and China.

552-Full3 Bengal Fan: This proposal has been approved by EPSP.

548-Full3 Chicxulub K-T Impact Crater: This proposal requires an EPSP review (a preview has already occurred); additionally, permitting could be an issue.

716-Full2 Hawaiian Drowned Reefs: A permit still needs to be obtained and EPSP needs to approve the sites, although this should not be an issue. There are potential technical issues for drilling that still need to be addressed after the GBREC operational review.

581-Full2 Late Pleistocene Coralgal Banks: There should be no permit issues. The proponents did request a downhole motor, which is a JR tool, but this proposal would not be drilled by the JR.

NanTroSEIZE: No permit issues for operations this year and EPSP has already reviewed the sites. There is still discussion about the kind of CORK to be used.

601-Full3 Okinawa Trough Deep Biosphere: EPSP will review the new site locations at the May meeting and SSP has already approved the proposal.

Engineering Issues and Handling of Ancillary Project Letters

Mitch Malone noted that several meetings ago, OTF began setting aside three days/twomonth expedition to implement APLs and engineering tests and that there is need to streamline the process for consideration and implementation of these proposals. He listed the following issues to consider:

- Flexibility
- Expectation management (proponents, co-chief scientists, IODP community)
- Integration (operations, science staffing, science/data/sample planning, budget/program plan integration)
- Berth availability (APL/engineering, participants, observers, etc.)
- Clearance (territorial, exclusive economic zones)
- Technical/analytical/IT support (purchasing, shipping, third-party tool evaluation, approval, and integration)
- Operational/engineering assessment (rarely only take three days)
- Assess impact (expedition, cost)
- Science Advisory Structure (SAS) review process

Malone presented a timeline for expedition implementation:

- Expedition schedule published (+18 months), at which point co-chief scientist selection begins
- Expedition staffing (+12 months, completed by +9 months)
- Pre-expedition meeting (+9-12 months), at which point the operations plan is finalized and the prospectus is written
- Clearance submission (+7-12 (or more) months)
- Science Party planning (begins once the expedition is staffed)

Based on this timeline, the USIO needs to know about APLs and engineering plans at least seven months in advance and would prefer to include them in the prospectus (so really need to know at least 12 months pre-expedition).

Malone reviewed the current timeline for inclusion of new APLs, noting that they are reviewed at SSEP in November, reviewed and endorsed by SPC in March, added to the proposed schedule during the April OTF meeting, and endorsed by SPC at the August meeting. He noted that this works well for expeditions that are at least +18 months pre-cruise during the August SPC meeting, but that for cruises scheduled for the early part of the schedule it does not work. He gave two possible options (endorsing the second):

- Restrict implementation for the early part of the schedule
- E-review of APLs scheduled for early expeditions (these would be identified by SSEP)

During discussion there was general agreement that the second option (E-review of APLs scheduled for early expeditions) was the best option. Filippelli noted that SPC has completed E-reviews of APLs previously and that doing so in the future would not be a problem. There

was also further clarification about submission of APLs. H. Kawamura noted that they can be submitted in response to a published schedule, but they do not have to be. Filippelli added that proponents want to know what happens to APLs that are submitted based on a general shiptrack and not a specific proposal.

Further discussion centered on the difficulties for implementing engineering development proposals. Y. Kawamura noted that the problem is the development of a tool that may not be finished, unless the developers are willing to finish it before trying to find a cruise during which is can be tested. Reagan added that this is really only a problem for tools that need to be tested on a particular cruise or in a specific environment. Larsen indicated that these engineering development proposals should follow the same guidelines as APLs, and Y. Kawamura noted that the Engineering Development Panel (EDP) needs to keep this in mind when trying to schedule sea tests. It was decided that EDP needed to know about these new guidelines for implementing APLs and engineering development proposals.

Final discussion centered on the length of time for APLs and engineering development proposals. Filippelli noted that SPC did not specify three days (for *JR* operations) as they did not want to indicate an exact length of time for these types of proposals. Malone noted that even when APLs are implemented well in advance that the main cruise participants still may be disappointed and feel that they have to terminate operations early. Larsen noted that the three days applies to any expedition and that the co-chiefs must understand that they get the full expedition length minus three days. Malone added that this is about managing expectations, which is why it is so important to include APLs or engineering development plans when writing the prospectus.

Appendix A: Post-OTF Discussion

Following the Operations Task Force (OTF) meeting in April, it became apparent that there was some disagreement amongst attendees as to the proposed Fiscal Year 2012 *JOIDES Resolution* schedule agreed upon at the meeting (Figure 15 in the present report). Based on post-meeting discussions, the U.S. Implementing Organization (USIO) indicated that they did not agree with this schedule and indicated the following:

- Figure 15 does not show a realistic time allocation (or ship track) to implement both the Cascadia and Costa Rica Mud Mounds proposals. Two weeks is not enough time to implement a shortened version (3 sites, 2 with observatories) of the latter proposal, which will require something closer to a full expedition.
- The USIO agreed to add the Costa Rica Mud Mounds proposal only after scoping of the Cascadia proposal and determination if there would be time and finances to include it on the schedule.

Appendix B: Acronyms and Abbreviations

APCT3Advanced hydraulic piston corer temperature toolAPLAncillary project letterAPPAnnual program planBoGBoard of GovernorsBOPBlowout preventerCDEXCenter for Deep Earth ExplorationCORKCirculation Obviation Retrofit KitCPPComplimentary Project ProposalCRISPCosta Rica Seismogenesis ProjectDPGDetailed Planning GroupECORDEuropean Consortium for Ocean Research DrillingEDPEngineering Development PanelEPMExpedition project managerEPSPEnvironmental Protection and Safety PanelESOECORD Science OperatorFYFiscal YearGBRECGreat Barrier Reef Environmental ChangesHPCSHydraulic Piston Coring SystemICDPIntegrated Ocean Drilling ProgramIOImplementing OrganizationIODPIntegrated Ocean Drilling ProgramIPCCIntergovernmental Panel on Climate ChangeISPInitial Science PlanJRJOIDES ResolutionLIMSLaboratory Information Management SystemLTBMSLong Term Borehole Monitoring Systemmbsfmeters below the seafloorMSPMankai Trough Seismogenic Zone ExperimentNanTroSEIZENarkai Trough Seismogenic Zone ExperimentNanTroSlideNankai Trough Submarine LandslidesNSFNational Science PortedSASScience Advisory StructureSASECScience Advisory StructureSASECScience	ACEX	Arctic Coring Expedition
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USIO United States Implementing Organization VIV Vortex-induced vibrations	TD	Total depth
VIV Vortex-induced vibrations	USIO	United States Implementing Organization
	VIV	Vortex-induced vibrations
VSP Vertical seismic profile	VSP	Vertical seismic profile