

## 統合国際深海掘削計画（IODP）科学アドバイス組織（EPS）会議報告書

提出年月日：平成 19 年 6 月 29 日

（ふりがな） まつおか としふみ

氏名： 松岡 俊文

所属（職名）： 京都大学工学研究科 教授

会議名	8th EPSP 会議
会議期間	平成 19 年 6 月 18 日 ~ 平成 19 年 6 月 19 日
用務地（国・都市）	Chevron Building ヒューストン 米国
目的	米国ヒューストンで開催された第 8 回 EPSP 会議に EPSP パネルメンバーとして出席し、掘削プロポーザルの安全環境に関する評価、及びそれらに関連する事項に関して議論を行った。
会議内容及び報告事項	<p>会議は以下のアジェンダに従って行われた。</p> <ol style="list-style-type: none"><li>1. 議事前事項</li><li>2. 会議に先立ち会議のアジェンダの確認と、出席者の自己紹介が行われた。アジェンダに有った Preview of Proposal 633-Full2 Costa Rica Mud Mounds はプロポーネントが出席せず、審議中止となった。</li><li>3. 前回の議事録の承認 New Jersey Margin に対しては sniffer が使用される事で、承認された。</li><li>4. 現在の IODP の他のパネル及び各 IO の活動状況に関して以下の報告がなされた。 SPC：予算が非常にタイトであり、現在の委員会構成メンバー数に関して、削減される方向で議論されている旨の報告があった。 JIO：SODV の改造の進行状況に関して報告がなされた。来年 1 月から運行予定である。 ESO：リグに事故があったことが報告された。New Jersey Shallow Shelf での掘削と、Great Barrier Reef に関する掘削について説明があった。 CDEX：ちきゅうのテスト掘削クルーズの現状に関して報告がなされた。現在オーストラリアで掘削中であり、8 月に日本に帰り、9 月から来年 2 月まで NT の掘削予定で、2 月～5 月はドック、6 月～再度 NT での掘削予定。 SSP：SSP でのレビューの現状に関して報告された。 IODP-MI：現在の Proposals に間にて報告がなされた。</li><li>5. Review recommendations on Barrier Reef Site Surveys リーフにおける掘削に関して「Reef Drilling Guideline」について議論され、字句の変更が行われた。</li><li>6. Preview of Proposal 519-Full2 South Pacific Sea Level Part 2 Australian Great Barrier Reef 海水準変動の解析を目的にグレートバリアリーフでの掘削の提案。42 日間で 37 本の掘削の提案。次回にレビューを行う予定。</li><li>7. Preview of Proposal 705-Pre2 - Santa Barbara Basin Climate Change サンタバーバラ堆積盆は石油堆積盆でもあり、掘削の安全性に関しての議論がなされた。プロポーネントに対して、より詳細な構造図の作成など、安全対策への検討が求められた。</li></ol>

8. Preview of Proposal 595-Full3 - Indus Fan and Murray Ridge  
インド大陸の衝突による気候変動と風化、アラビア海での堆積の関連の解明を目的に掘削の提案。3D 反射法データを用いた非常に詳しい解析結果が説明された。懸念事項は BSR とフリーガスの存在。孔隙圧推定のスタディーを求められた。次回にレビューすることとなった。
9. Preview of Proposal 505-Full5 - Mariana Convergent Margin  
マリアナ海溝への沈み込みによる海山形成の詳細を知る目的での掘削。反射法地震探査データの必要性が指摘された。
10. Preview of Proposal 548-Full2 - Chixculub K-T Impact Crater  
隕石の衝突で形成されたクレーターの詳細を解明のための掘削。Pemex での坑井において油兆の存在が指摘された。これに関して詳細な検討が要求された。特に炭化水素のソースに関する情報の検討。
11. Review of deep section - Site NT2-03 (first riser hole)  
NanTroSEIZE のライザー掘削(3600m)に関して PSDM の断面を用いて説明された。この掘削はスプレー断層を 3 本掘削する計画である。レビューの結果、安全に関する検討が不十分であるとの結論に至った。このためプロポーネントは 9 月 1 日までに安全に関するレポートをまとめて、提出することが求められた。さらにこのレポートを基に、1 ヶ月以内に日本側のパネル委員によって十分な検討を加えて、レポートを作成することが決まった。  
また同時に提案された 2 - 10A と 2 - 05A に関しては、各々掘削深度を 25m 浅くした。325 m と 275 m で承認された。
12. NanTroSEIZE Operational Protocol  
NT 掘削での protocol に関して説明がなされた。この説明の中で、Onboard Structure の図において、非常事態に対して最終的に誰が判断し、責任を取るかが明確でないという指摘があった。
13. Status of EPSP contribution to SEG hydrates volume  
SEG が考えているハイドレートのボリュームに対する EPSP のコントリビューションに対して議論された。EPSP は具体的なデータを持っていないので、このボリュームのまとめ役に連絡を取り、検討することとなった。
14. 次回の会議  
次回の日時に関して議論され、翌日開催予定の OTF の会議で議論され決定されることとなった。(OTF の会議において次回は 2008 年 June 16 - 18 と決定された。)

#### 事務局又は J-DESC へのご要望・コメント等

特に無し。

## EPSP meeting – June 18-19 Report

**Philippe Gaillot – alternate JDESC EPSP members (Jamstec, Japan).**

Minutes will be circulated in 3 weeks, i.e. Mid-july with slides of the talks for revisions in prevision of minutes revision end of july and final approval next meeting).

### June 18

8 :00 – 8 :15 : Logistics

8 :15 – 9 :00 : Self introduction – General organization of the meeting – Focus on minutes.

Agenda. – Conflict of interest.

Agenda Item	Objective
Welcome, conflicts of interest and meeting logistics – Barry Katz	
Self introductions - All	
Review agenda	Determine whether there are any required changes (additions, deletions, changes in order or presenters)
Approval of January meeting minutes – All	Correct and approve distributed minutes Review status of action items from January 2007 EPSP meeting <ul style="list-style-type: none"> <li>■ Safety sheets and latitudes &amp; longitudes for proposals 537A, 600, and 603-Stage 1</li> <li>■ Approach to be used by ESO for the use of the hydrocarbon “sniffer” as monitoring tool for New Jersey margin.</li> </ul>
ESO - Precedent Malau lake drilling – constraint staff and space on-board – Focus on shallow cores – different from commercial wells – lot of sciences /images upfront – Approach Ok.	
Review of SPC activities – Keir Becker	Update panel members of overall IODP planning activities – emphasis on those actions which may impact panel processes and activities
1.Update FY08-09schedule development – budget 2. March 2007 SPC Ranking 3. Update March SASEC meeting 4. Update on SAS review by SASEC Working group – See slides - Cost saving by reducing panel members # - 5/5/3 in respect to 7/7/3 - off-IODP contract vs flexibility ops and planning – review.	
Review of JOI Alliance activities – Jack	Status and update of program – current

Baldauf	timeline
1.SODV status 2. FY08-09 schedule 3. Expedition planning 4. EPSP issues - No geophysical acquisition capability on JR – Eliminates ability to reconfirm site location, define new site location. Fully require on navigation accuracy during pre-site surveys. 5. Future program planning	
Review of ESO activities – Collin Graham	Status and update of program – current timeline
1.New Jersey (Summer – end of October 2007) Platform got problem – got larger platform in May but at higher cost Return transit (fund) Offshore staffing !! ICDP will carry downhole logging (slim-hole) 2. Greet barrier Reef Impactstatement – GBR Marine park authority	
Review of CDEX activities – Shin`ichi Kuramoto	Status and update of program – current timeline
1.Oversea drilling Shakedown 2. Preparation for NantroSEIZE stage 1 & 2	
Review of SSP activities – Earl Doyle	Update on panel activities that relate to EPSP activities
Site survey Panel 1. Review of mandate – Review data from the database – Nomenclature system 2. Review of ranking of various proposals – See slides	
Review of IODP-MI activities – Barry Zelt	Update on IODP activities that relate to EPSP activities
1. Reviews of IODP-MI activities and future meetings 2. Submission proposal – Mission proposal 3. Review of workshops and symposiums 4. Scientific Drilling Journal	
Review recommendations on Barrier Reef Site Surveys – Bramley Murton and Donald Potts	Modification, if required, and final approval of EPSP recommendations (draft recommendations were appended to the January EPSP minutes)

<p>Drilling policy for drilling reefs - Review of modifications that were initially proposed  Pollution – Hazards vs. impact  To be completed based on discussion and review on June 19<sup>th</sup></p> <p>Reviewed and approved on June 19<sup>th</sup> PM</p>	
<p>Preview of Proposal 519-Full2 – South Pacific Sea Level – Part 2 Australian Great Barrier Reef – Gilbert Camoin</p>	<p>Understanding of the program’s scientific objectives and goals  EPSP to provide guidance as to the nature of the dataset that will be required to complete final review</p>
<p>Scientific review (objectives &amp; background ODP Leg 133 – including Tahiti Exp. 310 – 45° slope ok) and survey data review.  EPSP recommendations – Plan for more holes than expected – Flexibility / contingency; 150 –200 m drilling authorization vs terraces extend. Presentation – layout all data on 1 page. Slope map. Consistent scale (color scale) – Units. Extend of survey area. Requirements/Concerns from Operator. Importance of DPS ship capabilities ~ 100m from morphology bumps/slopes.</p>	
<p>Preview of Proposal 633-Full2 – Costa Rica Mud Mounds - Warner Brueckmann</p>	<p>Understanding of the program’s scientific goals and objectives  Provide to the panel an understanding of potential safety and environmental issues including fluid flow, presence of vent communities, potential for thermogenic and biogenic gas, and over-pressure within the system</p>
<p>Off of the table – Not discussed !</p>	
<p>Preview of Proposal 705-Pre2 - Santa Barbara Basin Climate Change - Craig Nicholson</p>	<p>Understanding of the program’s scientific goals and objectives as well as proposed drilling program and approach used to mitigate hydrocarbon risks  Determine whether the proponents should consider the preparation of a full proposal (i.e., determine if EPSP might be able to approve drilling locations based on the modified drilling program)</p>

<p>Good science. Composite section without major Safety issues. Context: Review - ?? science objectives can be accomplished safely without any additional effort/ Site and site review ??</p> <p>Identification of safety issues, if any.</p> <ol style="list-style-type: none"> <li>1. Science opportunities –</li> <li>2. ODP 193 (Site 893, 1992)</li> <li>3. Current site survey information</li> </ol> <p>Young sediment with high porosity &gt; 70% thermogenic gas but not in the targeted anticlyne. Real problem is not porosity but rather permeability (sand). Ok with California coast commission.</p>	
<p>Preview of Proposal 595-Full3 - Indus Fan and Murray Ridge - Peter Clift</p>	<p>Familiarize new panel members with the program's scientific goals and objectives</p>
<p>Science review – relationship climate (moonson), tectonics (erosion and mountain building). Indus / Bengal fan – Review of past DSDP – ODP drilling. Importance of seismic – seismic stratigraphy (estimates volume of erosion).. ICP-MS provenance method. At site of the drilling – thickness of the fan &gt; 8 km (up to 11 km). Crucial for science objectives. Drilling fine sand (not coarse sand!). Get above the CCD. 3D survey from Shell. Hydrocarbon province – structural highs and possible hydrocarbon risks avoided. No drilling in the chenai-levee system. Objective = continuous sequence. Gas hydrate – BSR + Free gas are present.</p> <p>Request from panel – consistent display ... contingency alternative sites (~ km apart), structure map, geo-hazard map. LWD –MWD – depth uncertainty basement.</p>	
<p>Preview of Proposal 505-Full5 - Mariana Convergent Margin - Patty Fryer</p>	<p>Understanding of the program's scientific objective and approach proposed to locate drilling sites Establish whether sufficient data will be available to complete a final review by the panel (Potential use of non-seismic data to position drill sites)</p>
<p>Strategy for site selection using side-scan vs seismic. Letter of justification required. Reasons for exceptions.</p> <p>Science review. Sulfate Methane production none or weak (upper meters). Living organisms (shells, bacteria, ...). Shallow penetration – casing and cork. Financial issues for the program. Deep drilling (Chikyu) for deep biosphere science. Water depth 3000m ! APC-XCB. Serpentine = plastic mud. No logging. Shallow hole to prevent stuck pipe (but high torque).</p> <p>Request from panel – Slope map (10°) - Alternate contingency sites. Review electronically (email).</p>	
<p>Preview of Proposal 548-Full2 - Chixculub K-T Impact Crater - Sean</p>	<p>Understanding of the program's scientific objective and approach proposed to</p>

Gulick	locate drilling sites Provide guidance to the proponents on panel needs to approve sites to depths up to 4000 meters into a brecciated section in a hydrocarbon bearing province
<p>Science review – Sampling peak ring Drilling site strategy – consensus on site location.</p> <p>Consolidated or not brecciated materials ? Large porosity ??– Possible loose of drilling fluid while drilling. Pore fluid? Melt, air, water from the hydrothermal system? Reduced permeability due to alteration / fluid circulation</p> <p>Request from panel – Zoom in seismics + discussion Seabed issues, fishing regulation, tourism.</p>	
Review of deep section - Site NT2-03 (first riser hole) - Shin`ichi Kuramoto	Final recommendation for the site.
<p>Get approval from 3.5 km Holes. Addendum Proposal 603 NT2-10 &amp; NT2-05 (shallow holes) – detailed deformation on sediment slope. 24 weeks = 6 weeks x 4. Science Review and review of Stage 1.</p> <p><b>NT2-03B</b> (3,500 m) NT2-03C: Geo-hazard assessment + mitigation. Casing point + previous (in particular stage 1) information and status. Request for decision tree/ plan-operational protocol. Increased implications from Japanese EPSP members – collect information from Operator and forward back to EPSP for decision (time is getting short – no chance for extra meeting). In others words – contingency, what’s if xxx go wrong, what if yyy go wrong, ... (Procedure / mitigation). Deadline – Meeting with EPSP Japanese delegation, Review with the entire EPSP meeting for final decision. See Gulf of Mexico Expedition and TAMU protocol.</p> <p>Summary of drilling – Well prognosis, casing point, lithology, conductor specs, geo-technical characteristics from upper section, What’s if something happen and how do you know that something happen. Please document. <b>For Hole Site/Operations. Need input/review from proponents and SPC.</b></p> <p><b>Shallow holes (NT2-05, 300m, NT2-10A – coring contingency site):</b></p>	
Status of EPSP contribution to Society Exploration Geophysics – Special volume on gas hydrates – Toshi Matsuoka and Sumito Morita	Determine status of the panel’s contribution and whether any additional actions are required. EPSP leads should be able to provide key dates forward, if any.
Review of Volume content	
Next meeting locations and dates ■ Date uncertain –Hannover,	Determine the timing and locations for the next two EPSP meetings –

<p>Germany (BGR) – Dieter Strack host</p> <ul style="list-style-type: none"> <li>■ Date uncertain – Venue uncertain (Japan) – Host uncertain</li> </ul>	<p>Consideration of drilling hiatus and status of reviews</p>
<p>Date: 18-19 February (low probability) – Most likely June 16-18 Europe</p>	
<p>Adjournment</p>	



## Roster – List of attendees as of May 2007

### Name E-mail Status Notes

Bruce, Robert thebruces@sbcglobal.net EPSP  
Enachescu, Michael michaele@mun.ca EPSP not attending  
Gaillot , Philippe gaillotp@jamstec.go.jp EPSP alternate for Maruyama, Tadashi  
Hato, Masami mhato@earth.kumst.kyoto-u.ac.jp EPSP not attending  
Katz, Barry barrykatz@chevron.com EPSP Chair / Host  
Lapointe, Philippe philippe.lapointe@total.com EPSP  
Maruyama, Tadashi tadashim@jamstec.go.jp EPSP not attending  
Matsuoka, Toshifumi matsuoka@kumst.kyoto-u.ac.jp EPSP Vice-chair  
Morita, Sumito morita-s@aist.go.jp EPSP  
Murton, Bramley bjm@soc.soton.ac.uk EPSP  
Nagakubo, Sadao sadao.nagakubo@jdc.co.jp EPSP New Member  
Nogi, Yoshifumi nogi@nipr.ac.jp EPSP alternate for Hato, Masami  
Potts, Donald potts@biology.ucsc.edu EPSP  
Schubert, Jerome jschubert@tamu.edu EPSP  
Shipp, Craig craig.shipp@shell.com EPSP  
Strack, Dieter DDHSTRACK@aol.com EPSP  
Tanahashi, Manabu tanahashi-m@aist.go.jp EPSP  
Teodoriu, Catalin catalin.teodoriu@pe.tamu.edu EPSP New Member  
Watanabe, Toshiki watanabe@seis.nagoya-u.ac.jp EPSP  
Winters, William bwinters@usgs.gov EPSP  
Allan, James jallan@nsf.gov NSF

Baldauf, Jack Baldauf@iodp.tamu.edu USIO-TAMU  
Becker, Keir kbecker@rsmas.miami.edu SPC  
Claypool, George geclaypool@aol.com TAMU-SP  
DeSilva, Neil ndesilva@rogers.com TAMU-SP  
Doyle, Earl ehdoyle@alltel.net SSP  
Evans, Dan devans@bgs.ac.uk ESO  
Goldberg, Dave goldberg@ldeo.columbia.edu USIO-LDEO  
Graham, Colin ccg@bgs.ac.uk ESO  
Hovland, Martin mhovland@statoil.com TAMU-SP not attending  
Janecek, Tom tjanecek@iodp.org IODP-MI  
Lersen, Hans Christian hclarsen@iodp-mi-sapporo.org IODP-MI  
Malone, Mitch malone@iodp.tamu.edu USIO-TAMU  
Quoidback, Dan daniel@ldeo.columbia.edu USIO-TAMU not attending  
Kuramoto, Shin`ichi s.kuramoto@jamstec.go.jp CDEX  
Skinner, Alister acsk@bgs.ac.uk ESO not attending  
Zelt, Barry science@iodp-mi-sapporo.org IODP-MI

Brueckmann, Warner wbrueckmann@ifm-geomar.de 633 proponent not attending  
Camoin, Gilbert gcamoin@cerege.fr 519 proponent  
Clift, Peter p.clift@abdn.ac.uk 595 proponent  
Gulick, Sean sean@utig.ig.utexas.edu 548 proponent  
Hensen, Christian chensen@ifm-geomar.de 633 proponent not attending  
Kuramoto, Shin`ichi s.kuramoto@jamstec.go.jp 603 NanTroSEIZE PMT rep.  
Nicholson, Craig nicholson@msi.ucsb.edu 705 proponent  
Patty Fryer pfryer@hawaii.edu 505 proponent 2nd day only