

NanTroSEIZE PMT Meeting #10

San Francisco, California

July 25 - 27, 2007

MEETING ATTENDEES

PMT members

Thomas Janecek
Gaku Kimura
Masa Kinoshita
Adam Klaus
Shin'ichi Kuramoto
Greg Moore
Harold Tobin
Mike Underwood

Stage 1 co-chiefs

Juichiro Ashi
Liz Screatton
Siegfried Lallement

Stage 2 co-chief

Casey Moore

Specialty Coordinators

Toshi Kanamatsu
Demian Saffer

IO

Hideki Masago
Daniel Curewitz
Moe Kyaw Thu

Other

Kelly Oskvig
Wonn Soh

PMT core members not attending:

Hans Christian Larsen

Specialty Coordinator not attending: Geoff Wheat

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1. Report From IODP-MI

June 2007 Operations Task Force

Janecek presented the outcome from the June 2007 Operations Task Force meeting (presentation in Appendix A). Major changes in the schedule include:

- (1) the removal of Expedition 317 from the SODV schedule due to the shift of the SODV start date to mid-Feb and fishing union restrictions (no operations March – May). Beginning SODV operations with Equatorial Pacific allows more flexibility in the schedule.
- (2) The delay of CHIKYU Riser-portion of NT2-03 until Jan 09. There will be an undefined 2 month break in operations for maintenance and/or non-IODP operations; NT2-03 will continue after the break.
- (3) The availability of 2 months of riserless operational time on the CHIKYU in the timeframe of Oct – Dec, 2008. The PMT needs to prioritize operations that could be run during those 2 months and make a recommendation to the OTF. Janecek clarified that the OTF would wait until the PMT group met and prioritized operations to make any recommendations to SPC and that the PMT recommendations would way in heavily for what OTF decides.

Discussion on the next riser hole after NT2-03

SPC will prioritize 3 riser programs currently at OTF to fill the 2 month slot. With the new climate we are in, all programs can not be completed due to fiscal complexity. Some

programs may be removed from the OTF and removed from consideration all together. The three programs currently competing for the riserless time are: NT-301, Murray Ridge, and CRISP. SPC will make an official prioritization statement this August.

SASEC issued a strong statement of IODP priorities before 2013. The priorities include achieving major milestones in NanTroSEIZE (for CHIKYU operations and for the program) and to maximize use of CHIKYU for riser drilling, and start a new riser program before 2013. It is undefined if this “start of a new program” is simply planning or to start drilling. The earliest possibility for a new project to start would be 2011 (Murray Ridge or CRISP); however, significant planning has already gone into NT3-01, so it makes sense to continue with it. There is a good chance of completing the major NanTroSEIZE milestones in the next 3-4 years.

In regards to mission proposals: no mission will come into play within 2013. Planning could begin as there are funds for doing so, but there will be no significant drilling, meaning nothing beyond exploratory riserless drilling.

The path forward is to plan for the next 5 years with the information we know. Operations will likely consist of MSP operations every other year (unless ECORD gets an extra 5 million a year), 5 months riser drilling with CHIKYU, 2 months riserless drilling with the CHIKYU, and 8 months of riserless drilling with the SODV.

FY08/ Early FY09 Schedule

Mariana, Shatsky, and NanTroSEIZE have been identified to fill in the TBD place; however, NanTroSEIZE has been taken out of the pool because of the riserless time available on the CHIKYU. Mariana and Shatsky have been selected based on logistics such as weather windows. SPC will make a final decision this August.

New Jersey shelf had to be cancelled for FY07 due to problems attaining a vessel and hurricane season. The OTF has recommended it going ahead in FY08 which means the MSP schedule has been shifted one year.

FY09 Schedules

Maximum operations on the SODV for FY09 are 8 months or roughly 4 operations, so there is still room for one additional operation in FY09. This could be Mariana or Shatsky, Superfast, or something similar. This will also be sorted out in August.

The CHIKYU will run 2 months of riserless drilling and 5 months of riser drilling. When these time slots occur is up to CDEX and has not been decided. The split of riser drilling will cause a change in our staffing schedule, the PMT should think about staffing schedule implications of having NT3-01 drilling split time wise.

The members questioned whether there is pressure to get the SODV out of the Pacific. For FY09, following Wilkes Land, the SODV is expected to stay in the Pacific. After

FY09, there will be an expectation to move it out of the Pacific (Atlantic or Indian Ocean, depending on where non-IODP work may be – that is what makes sense in terms of transit times). There are several highly-ranked proposals in the queue that are outside the Pacific.

With 5 months of riser drilling each year, no other riser program could occur until 2013, unless it takes significantly less time to drill the holes than envisioned. Completing NT3-01 will take the program into part of FY12.

Timeline for next few months

IODP-MI needs to have in hand a prioritization for drilling from the PMT in the next 2 weeks so the prioritization can be inserted into the SPC agenda book. OTF will meet the day before SPC to finalize what goes in the TBD slot for the SODV and to make a statement as to how to best fill the FY09 slots. OTF will come up with the schedule, then SPC will approve. Approximately 1 month from now, the FY09 program plan will be decided and there will be an idea of what the next riser project will be. The FY09 schedule will be minimal (nothing that has great expense, no new casing, nothing beyond the normal other than drill bits and liners, etc.)

For the future, it needs to be decided how to best utilize riserless time on the CHIKYU. Asian monsoon and other programs could be considered; NanTroSEIZE is not a given. It is important now to know what the issues are to carry out the program, know what CDEX has in mind for riserless possibilities, and know exactly what needs to happen in order to meet the NanTroSEIZE goals in the next 4 years. This will all come together in a package so that the OTF has the issues before them while planning future operations. SPC has been very supportive of NanTroSEIZE historically, and one reason for this is the PMT has provided them with realistic and honest plans. SPC will make decisions in favor of programs that have the risks spelled out.

2. Report from CDEX

Kuramoto gave the an update of CHIKYU status, Stage 1 expedition status, CHIKYU expedition schedule and of observatory plans (see Appendix B for presentation slides)

CHIKYU Status report

The Overseas Drilling Shakedown plan included objectives of (1) completing drilling tests under deep water, deep penetration, various geological settings and high current as well as (2) completing riser drilling training. ODS has concluded after drill tests in Shimokita, offshore Kenya and Western Australia. The ODS cruises were in general very successful, with BOP set and operated at 2200m WD, drilling to 3700 mbsf, riser drilling under high current condition, high performance of DPS, deviated drilling conducted, crew training and efficient operation. Unfortunately, the CHIKYU did suffer

damage to 4 of 6 tensioners while drilling off of Western Australia; cause still to be determined.

Expedition 314 Schedule

The CHIKYU will arrive at Singapore on 27 July, 2007. The tensioner will be offloaded in Singapore where it should be repaired by the end of May next year, before the riser drilling is scheduled. The CHIKYU will depart Singapore on 11 August, 2007 and arrive in Yokohama 28 August, 2007. There will then be 2 weeks of dock work. CHIKYU will depart Yokohama 11 September and arrive for loading at Shingu 13 September, 2007. The Expedition 314 Pre-spud Meeting is scheduled for 20 September, and transit to begin NantroSEIZE Stage 1 riserless drilling begins 21, September, 2007.

CDEX Proposal for FY08-10

Budget guidance in general dictates 5 months of riser + 2 months of riserless per year. Three months of dock and inspection time in 2008 coincides with the fishing union restriction. Non-IODP work is included in the schedule but as of now, there is nothing lined up. It is not certain how the contract will be written and whether or not the September start date for operations will need to be flexible.

2007											
JP FY H18						US FY07			JP FY H19		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ODS (Oversea's Drilling Shakedown)						Dock		IODP:NantroSEIZE Stage1/RL			

2008											
JP FY H19						US FY08			JP FY H20		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP Stage1/RL	Dock & Inspection				Non-IODP				IODP:NantroSEIZE Stage1/RL		

2009											
JP FY H20						US FY09			JP FY H21		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP:Nantro Stage2/Riser	Dock		IODP Expedition Availability (5 Months for Riser + 2 Months for Riserless) per Year								

2010											
JP FY H21						US FY10			JP FY H22		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
			IODP Expedition Availability (5 Months for Riser + 2 Months for Riserless) per Year								

HUET, Sea Survival, Fire fighting training

There are both 3-day courses and 1-day courses. It is requested that participants at least take the 1-day course.

What if someone misses the training because their flight is delayed?

One option is for the staff to arrive one day early to ensure they make it, but will the PMO pay this? Historically, the community arrives 4 or 5 days before departure. At USSAC, the thought was to send US staff to training in the US before they leave as certification from anywhere will be acceptable. The case needs to be made to the PMOs justifying participants arriving early to make sure they make it to the training.

Action Item 1: Tobin to propose PMO fund an extra day of per diem to US proponents to allow ample time for HUET training.

Current Status of Stage 1 Planning

1. Staffing is done (except 1 slot of #315)
2. Sample & Data Request - Start with a new registration system via WEB; the deadline is 15 Aug and the SAC will have the requests coordinated by 15 Sep.
3. Boarding Schedule - Under coordination w/ co-chiefs
4. Expedition Preparation - Scientific Prospectus issued; welcome letters are sent out; communication tool (Basecamp) is implemented
5. CHIKYU Laboratory (KAIZEN) - – some modifications just before 314 in Yokohomo
6. Stage 2 Planning
7. Rest of Stage 1 Planning - Need to coordinate requests among the 3 expeditions since they will all be one science party

CHIKYU Laboratory

Lab operation will re-start 27 July. Lab modifications are planned during the dock work and during Exp. 314 (LWD).

IODP minimum measurements equipment have been tested and are ready for use: Biostratigraphy, Smear slides/Thin sections, VCD, digital photography, temperature, moisture and density/porosity, Core logging - NGR, GRA, MS, and downhole logging.

IODP standard measurements equipment is either ready, or alternative instruments are available: NRM, PWV (logging), Thermal conductivity, XRF, XRD, X-ray CT, Color reflectance, etc.

Action Item 2: Link NanTroSEIZE documents to the IODP website. IODP-MI to update overarching NanTroSEIZE webpage and send CDEX webmaster a list of changes they need to make or links to update.

The XRF will be put with the desktop equipment when it arrives.
Time sensitive tests will be done downstairs before XRay.

Action Item 3: Curewitz to check into the status of the discrete sample p-wave instrument, pressurized and non-pressurized.

Basic Core Flow

Laboratory plan views are shown in Appendix C.

The core flow plan will include times for the processes, available online soon.
Processing one core, from start to finish, takes 3 – 5 hours (more for VCD). The XCT takes 10 minutes per section, roughly amounting to 1 hour per core. MSCL-W is the bottleneck in the process.

In the case that cores back up, the co-chiefs will need to decide if there are certain tests that can be deferred; this is part of the minimum measurement program.

Addendum 603-B

Moore presented information on Addendum 603-B (see Appendix G), which calls for a NT2-01D site in order to drill through the splay fault at an ideal depth and at the depth specified in the Scientific Prospectus.

Site NT2-01B aimed to penetrate through the splay fault at ~800mbsf and into the sediment below. The total penetration was planned for 1000m, it turns out that drilling NT2-01B would hit the fault at 650m, so it was decided to move the location of this operation to a new site, NT2-01D, aimed to hit the fault at 750m and penetration into the sediment below, as was described originally in the prospectus. If site D is selected, the prospectus would be the same, but the co-chiefs should include an addendum to the prospectus in order to officially include the site in the system.

Action Item 4: Co-chiefs to submit a prospectus addendum to IODP-MI Sapporo with a new location table showing the change to site NT2-01D.

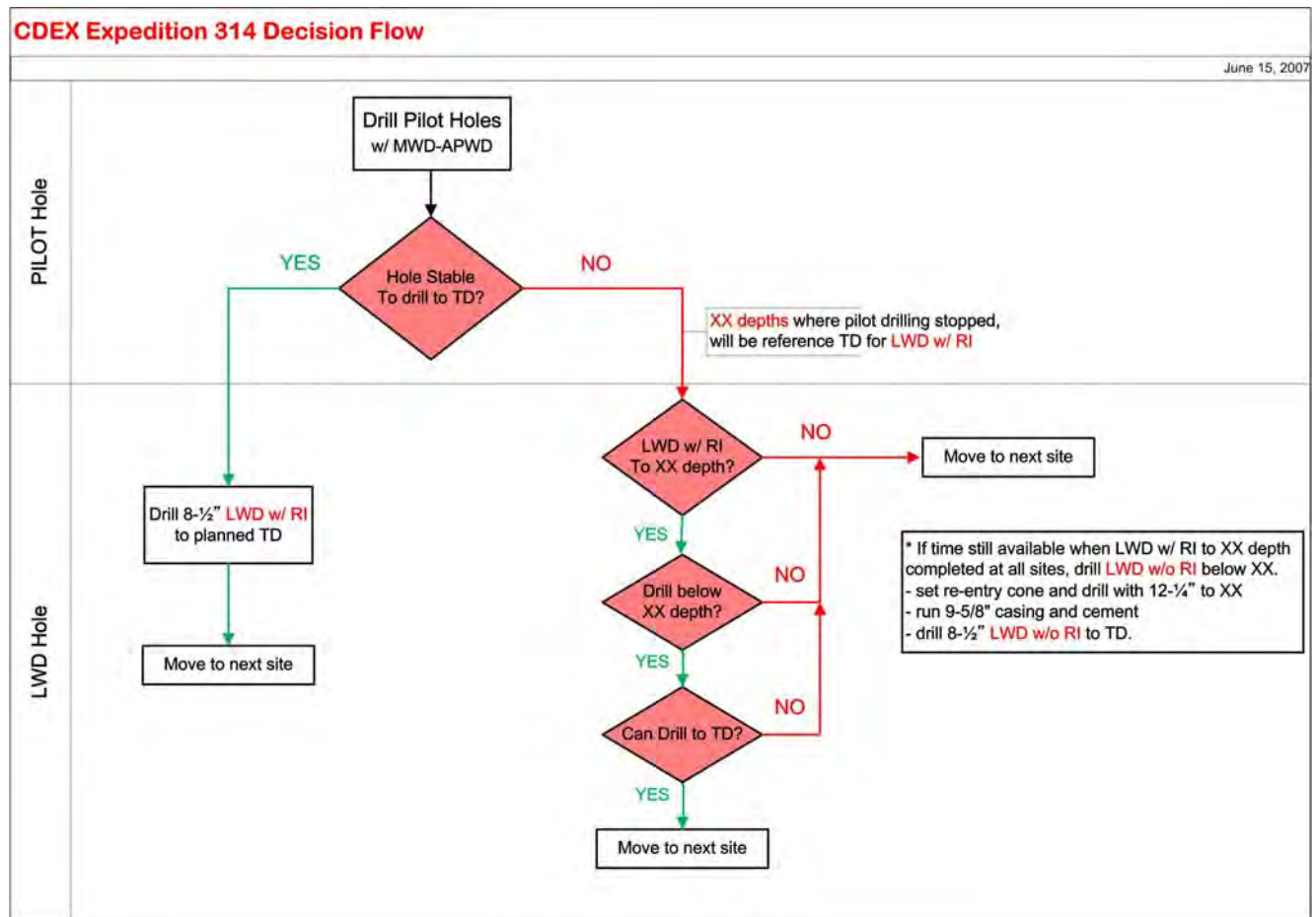
NT2-01C: it would be nice, if not essential, to date the slope sediment sequence deposited on top of the older fault system. Two sites have been added on to do this (450 to 500 m of drilling). These 2 sites are NT2-10A and NT2-05A, approved by EPSP. These sites are in the running for additional contingency sites – something to consider for nonriser drilling in the future. As long as these sites are thought of as contingencies, they do not need to go through the SPC process. If they move outside of the realm of contingency sites, the addendum should be sent to SSEP since this is essentially science that hasn't been proposed previously.

Action Item 5: Co-chiefs to send an update to proponents of 603-B since the sites have changed.

3. Expedition 314 Status

Moe presented the status of Expedition 314 including updates on the LWD plan, operation plan and time estimate, logging service, science party working groups, hardware-software for the science party, contingency plans, and post cruise schedule. See Appendix C for details. No major changes are expected. The LWD team will have a small meeting this week to finalize the plan for data processing in order to determine responsibility levels between SLB and the science party and confirm the associated processing costs.

It was apparent that we need a clear decision tree for pilot holes. If pilot holes take longer than expected or CDEX decided the hole is a “no go”, the staff needs to understand the process. CDEX has put together a decision tree, shown below, which was presented at EPSP.



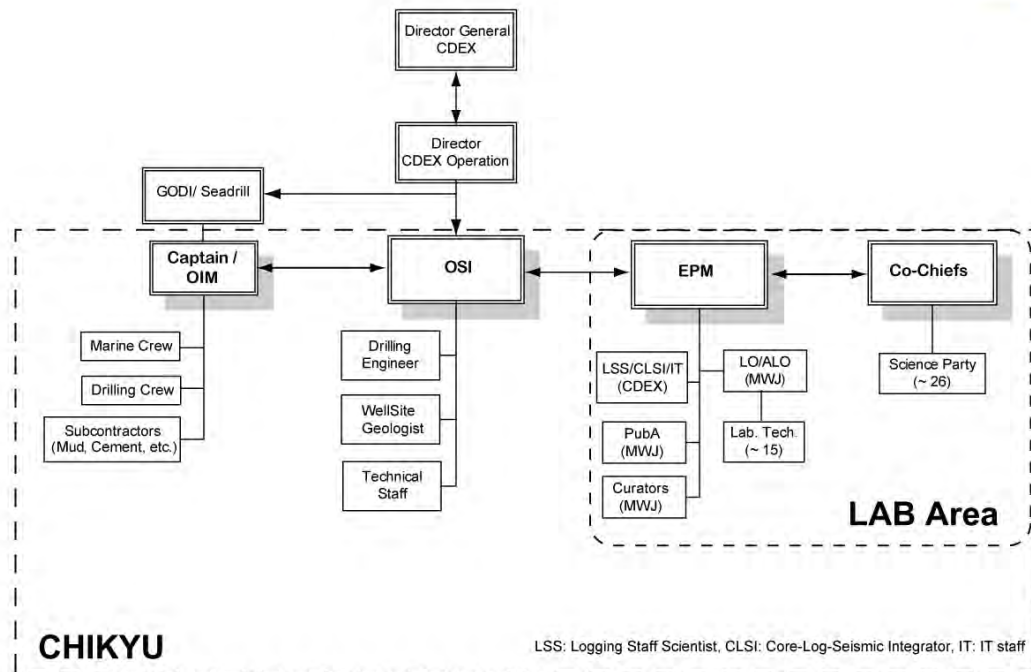
The pilot holes are: 1-03 for fault drilling and 2-03 for riser drilling. Two out of six sites have pilot holes. The general protocol is: if the hole is stable to reach the TD, then finish it. If not, start a second LWD hole and then try to drill it do the TD depth. There are 2 tries in the plan to reach the TD. The definition of “stable” becomes very important in this plan. We should assume that this definition will probably be conservative since drilling operations are new on the CHIKYU.

Action Item 6: Co-chiefs need to explain the pilot hole drilling protocol to the scientific party at the pre-expedition meeting.

The CHIKYU Chain-of-Command: the Captain will oversee all operations. OSI will instruct the Captain and communicate with the EPM and Co-chiefs. The OSI will be responsible for determining “go” or “no go”. There will also be a daily phone meeting with the CDEX management, so if there are any disagreements as to proceeding forward, there will be an additional chance to present the case.

CHIKYU Onboard Structure

NanTroSEIZE Stage 1



Operation Plan

- Leaving Shingu Port on 9/21
 - Pre-Spud/ Introductory Meetings @Port
- Pilot Holes Drilling (9/21-29)
 - Trainings/Seminars & meetings
- LWD Drilling (48.5 days with 24 contingency days)
 - Six sites (24.5 days drilling)
 - Typhoons (2+1 may take ~10 contingency days)
 - Sept.-Oct. Records: 3+2 Max., 2+1 Average
 - Casing for three 1000m+ holes (9 days for NT3-01)

- NT3-01 1400m TD, 6+3 days for casing & drilling to TD
- Down-Time for tools and other problems
 - 2 sets of LWD onboard all the time (one backup in SLB Japan Base)

Staffing

- Japan
 - Kinoshita (CC), Saito (Lithostratigraphy), Yamada (Structural/Image), Nakamura (Integration), *Miyakawa
- US
 - Tobin (CC), Moore, Gulick, Martin, Sawyer
- Europe
 - McNeil, Tudge, Bourange, Conin, Jurado
- Korea/China
 - Chang (Korea) (Breakout)
- EPM
 - Moe
- CDEX
 - Philip, Sanada, Kido, Greg

As for the schedule, it was decided that Demian and Mike will arrive early to work with LWD teams and Coring team and Gaku will be there for the transition week. – Nov 11-16.

Action Item 7: Come up with global spreadsheet with boarding/disembarking times for all 3 expeditions. Shin'ichi to send PMT an updated version.

CDEX logging Service

- NT Stage 1 Chikyu Logging Plan
 - To use all logging budget for LWD tools
- LWD
 - VSP (22 days); density/porosity, sonic, resistivity (28 days); annular pressure & MWD (2 months)
- Wireline Logging as Backup
 - (sFMS & sonic Velocity)
- Data Processing
 - Data Q/C
 - Image logs processing
 - Sonic Velocity

The logging tools are rented for X number of days. Any amount of time the tool is used in a 24-hr period will count as a day. We may run out of LWD tool rental time with plenty of time left on the expedition, at which time we would have to do coring. It was

pointed out that you don't need to use all the tools at each site. For example, VSP would be more important to have at NT3-01 than it would at NT1-01.

Action Item 8: Prepare planning of tool use to maximize tool leasing period.

Science Party Working Groups

Science Party is divided into the following Working Groups: CDEX Group, Lithostratigraphy Group, Physical Properties and Hydrogeology, Structure Group, Log-Seismic integration. The specialty coordinators will assign people to groups as makes sense and with the input of the participants. This will aid in writing as well. This makes sure people are grouped according to their interest. This is how things have been done on the JR as well. The grouping should be clarified soon as to who is assigned where and who will lead. Specialty coordinators should be on board when critical analyses are being done.

After discussion, co-chiefs decided not to identify team leaders because they expect leaders to emerge naturally during the cruise and that the appropriate leader may vary by site.

Hardware-Software for the Science Party

Special HW-SW for the LWD (Logging)

- Linux-Windows Workstations (Dual Monitor)
- GeoFrame (logging data processing)
- Paradigm (seismic data processing, log analysis)
- GeoMechanics (GMI.imager)

Other HW-SW for the Science Party

- Basic general & science use software
- 9+ 4 desktop PCs for science party use
- 4+4 note books for EPM, CCs

Internet Access (512 Kbps V-SAT)

- Mail, Internet, Data Transfer, IP Phone, Video Conference

A policy for bringing outside equipment onboard will be distributed to participants soon.

Contingency Coring Plan

- Riser Hole Geotechnical Coring (Pilot Hole Drilling)
 - Core 70m sediment at NT2-03 site
 - Drill and core 70m with HPCS (1.5 days)
- RCB Coring System Test (LWD Drilling)
 - To test the Rotary Coring Barrel (RCB) test at NT3-01 site
 - Drill 600m by RCB, core 50m (3.5 days)

Riser Hole Geotechnical coring (pilot hole drilling) – This plan was requested by the CDEX operations group in order to help them decide how to install the casing. CDEX plans to drill 70m of core and send the core back to shore for testing. This should be done at the start of the expedition to allow time for shear strength testing and casing design based on the results.

The PMT did not see the high importance of performing the geotechnical coring pilot hole and ranked the second contingency, RCB coring system test, a higher priority since the RCB system has yet to be tested.

If geotechnical coring is needed for operations and is a part of the pilot hole drilling time allocation, then the PMT should agree to have this as a contingency; however, the validity of this operation is still unclear. PMT questions (1) what information can not be obtained from the LWD data that requires coring, and (2) what information can you not get by lowering the pipe in the first 70m? Shear strength data is the useful information that could not be obtained from LWD.

Reliable geotechnical data is needed in order to use S-wave data to estimate the soil shear strength. The final analysis includes triaxial compression tests, vane shear and penetrometer tests. It seems this should be primary plan in the pilot hole, not a contingency.

Action Item 9: PMT to find out if the geotechnical coring is a true contingency. If so, how does this relate to other LWD contingencies? The PMT needs an explanation of why CDEX needs this pilot hole and what happens if they run out of time - does this become a contingency to do at a later date? What is the negative impact of not having this information, of designing the casing based only on LWD data? Is there a backup plan if they don't have enough information to install the casing?

The RCB has been tested on land but not tested on the seafloor. As a coring contingency, this is a candidate. One option would be to plan on starting coring at 550m, core 50m and then keep drilling and coring as time permits. This testing could be folded into another coring contingency. Coring to 1000m and deeper is very important for things like observatory testing. Lab teams will be on board, but not extensive; however there will be the capability to process core. Additionally, the group leaders will all be on the ship. If the RCB coring contingency does not get done, Expedition 314 will start without ever testing the RCB.

Post-cruise Schedule

Operations Review Task Force (ORTF) (normally ~ 4 months post cruise)

- Co-Chiefs' report (Lessons-learned items and recommendations)
- IO report (Scientific achievements, operation review, discussion items and recommendations)

- NT Stage 1 Expeditions Review Meeting in Japan (April-June, 2008)
 - IODP P-VPs, CCs, EPMs, LSSs, IO representatives & CDEX responsible personnel, Science Community and Industry representatives

There will be one ORTF Stage 1 meeting. Janecek will let CDEX and co-chiefs know the type of information that will be needed for the review. These meetings are very useful in identifying things that should be repeated and things that need work.

1st Post-Cruise/Editorial Meeting (3~ 5 months)

- To finish Expedition Report (IODP Proceedings) (EPM-LSS-CCs-Key scientists & CDEX Editor-In-Chief)
- Exp. 314: At TAMU (Feb-Mar, 2008)

Is it necessary for specialty coordinators to attend the editorial meeting?

It is up to the co-chiefs. If there end up being 3 separate meetings, both the co-chiefs will be at all 3 meetings.

2nd Post-Cruise Meeting (~ 24 months)

- To discuss research results, confirm for Research Results publication
- NanTroSEIZE Science Symposium (March-May, 2009)

4. Expedition 315 Status

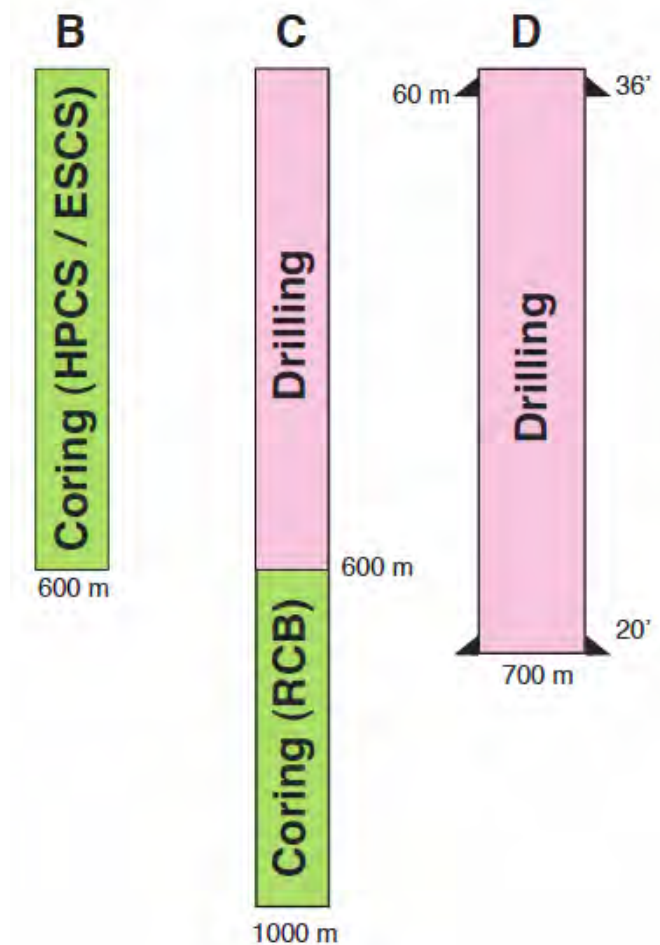
A presentation of the status of Expedition 315 was given by Masago, included as Appendix D.

- Staffing (still 1 PP [EU] not fixed)
 - US (8), JPN (8), EU (9)
 - Boarding schedule arrangement: in progress
- Scientific Prospectus
 - In final editing, will be on the web soon
- Sample & data request started (online)
 - One Sample & Data request has been received thus far. Specialty Coordinators will encourage people in their groups to submit sample requests.
 - Deadline is ~ Aug. 15
- Start discussion about science plan
 - Communication through Basecamp
 - Routine measurements., core flow, non-standard/3rd party tool

Operation Schedule

The operation schedule, totaling 33 days, is illustrated below and includes:

- HPCS/ESCS coring to 600 m (Hole B): 7.5 days
- RCB drilling& coring to 1000 m (Hole C): 7.5 days
- Drilling & casing for future riser hole (Hole D): 8 days
- Contingency: 10 days



Staffing and Boarding Schedule

The PMT questioned whether or not to fill vacancies in Expedition 315 staffing with cancelled scientists. It is suggested to move Henry to CLSI/PP, and invite Kopf to be the PP.

Action Item 10: Email Kopf and invite him to participate on Exp. 315, if co-chiefs agree. It is up to the co-chiefs to figure out who their priority candidates are, make sure CDEX agrees with the list, and finally submit to ESSAC for approval.

The boarding schedule for Expedition 315 is shown below. The TBD Sedimentologist is now Mike Underwood. P. Henry has been moved into the CLSI/PP TBD slot and A. Kopf is taking P. Henry's place as PP.

Exp. 315 (Megasplay Riser Pilot)

Science party #	Speciality 1	Japan	US	ECORD	China	Korea
1	Co-Chief Scientist	J. Ashi				
2	Co-Chief Scientist			S. Lallemand		
	Expedition Project Manager	H. Masago				
	Logging Staff Scientist					
3	Sedimentologist		TBD			
4	Sedimentologist		J. Guo*			
5	Sedimentologist	Y. Hashimoto				
6	Sedimentologist			G. Calves* (UK)		
7	Structural Geol.		T. Byrne			
8	Structural Geol.	K. Kanagawa				
9	Structural Geol.		J. Lewis			
10	Structural Geol.			V. Famin (F)		
11	Structural Geol.			J. Behrmann (G)		
12	PP	T. Hirono				
13	PP		W. L. Zhu			
14	PP		B. Likos			
15	PP			P. Henry (F)		
16	PP/Heat Flow			F. Schmidt-Schierhorn* (G)		
17	P-Mag	T. Kanamatsu				
18	P-Mag		J. Pares			
19	Micro-Pal	H. Hayashi				
20	Micro-Pal			B. Boeckel (G)		
21	Inorg. Geochem.	H. Tomaru				
22	Inorg. Geochem.		S. Hulme*			
23	Org. Geochem.	H. Saito				
24	CLSI/PP			TBD		
25	Microbio			A. Kaksonen (Finland)		
		8	8	9	0	0

*Graduate Student

The Expedition will run from 16 Nov – 19 Dec, 2007. The boarding schedule is provided below. CCs, EPM and some key scientist will board a week early (Nov. 11) to overlap with the previous expedition. Certain key scientists will stay until the report is finalized. One urgent agenda item is deciding who belongs to each group. At beginning of expedition there are not enough berths for all the “key scientists”, therefore 1 or 2 of the key scientists will board after that first week (Nov. 16). The proponents will be placed in groups by the end of this meeting.

- CC : **Ashi, Lallemant**
- EPM : **Masago**
- Sedimentology : **Underwood**, Calves, Guo, Hashimoto
- Structural : **Byrne**, Behrman, Famin, Kanagawa, Lewis
- PP : **Hirono**, Kopf, Likos, Zhu
- PP/Heat flow : **Schmidt-Schierhorn**
- CLSI/PP : **Henry**
- Paleomag : **Kanamatsu**, Pares
- Micropaleonto : **Boekel**, Hayashi
- Inorganic Geoch : **Tomaru**, Hulme
- Organic Geoch : **Saito**
- Microbio : **Kaksonen**

- **Red (key persons)** : arrive Nov 11 and leave Dec 19
- **Blue** : arrive Nov 16 and leave Dec 19
- **Black** : arrive Nov 16 and leave Dec 13

Contingency Plan

There is some concern over half the scientists disembarking on the 14th of Dec. If all the holes are pushed back, then there would not be enough scientists on board – this is not the case. There would still be a full science party, it would just be a new group of people.

Concerning reporting efforts, the thought is that coring will be done early so there may not be a need for a last minute team to finish up the reporting, so long as there isn't a significant weather event at the start of the expedition.

It was established that Hole D must be drilled, this implies that if Hole C isn't finished, then it should be cased, the LWD will have already been completed so this shouldn't be an issue.

Is there a situation where the 700m of coring would not get done but the casing would? Just the casing will be done if that is the only option.

If everything goes smoothly, there are 10 extra days. At this time, they would start on NT2-04, NT1-04, NT1-05. The prospectus needs to include a contingency plan to maximize science with regards to other events that have occurred. Sites that have been cancelled should become higher priority. The plan should be spelled out clearly to say what to do in every situation. The PMT should be informed along the way with the status to agree with what is being done. The plan needs to prevent scientists from lobbying against the co-chiefs' decision – which should not be so much of a decision if it is spelled out clearly.

5. Expedition 316 Status

Get slides from Dan

Expedition 316 Staffing

Staffing

Get slide from Liz

Red is the early board group (12) – may be okay, adjust later. These are the “key people”, not necessarily team leaders. Achim and Mike will be staying late from 315.

Science Schedule slide

Temperature measurements depend on DVTP availability – this is not thought to be an issue. The DVTP probably will not be able to run as deep as intended. Can the DVTP be run through RCB? There is no collected delivery system on the CHIKYU.

Contingency Operations

Prospectus was finalized before the cancellation of NT1-01, NT1-07, and NT3-01-all primary sites for stage 1. NT2-10A and NT2-05A could be done quickly and without complication.

6. Global Contingency Priorities

What are the high priority things to do beyond what is already on the schedule?

NT1-01, NT3-01, NT1-07

Input and preparing for the observatory and ultimate riser are crucial to meeting the NanTroSEIZE goals.

How valuable would it be to use a few days to get the upper few 100m? 1-01 is short enough, you could drill it easily, what about the others - what value would it be to core shallow holes? One option would be to jet out the upper portion and start at a deeper depth. Another option would be to core shallow and come back later to finish as time permits. There are many options that need to be prioritized scientifically.

High priority, depending on days available:

1. NT3-01(shallow?)
2. NT1-01
3. NT1-07 if enough time to get deep

Short time available (few days):

1. NT2-10
2. NT2-05

PMT should think about completion vs. making progress. There is great benefit to drilling 400m of NT3-01 for example – this would provide the geotechnical information for the riser. Should we rank the sites or just do them based on how much time is available? In reality, the shorter-term sites are more likely. What will provide the most benefit from doing now vs. later.

NT1-07 – the most interesting part is deep, so if only a few days are available, it wouldn't be a priority to get this one started, necessarily. Realistically, it may not ever be a contingency, but it should be left on the list.

Contingency plan for coring – as long as time exists, coring is a top priority, the sampling can always be done at a later date.

Consensus 11: Consensus among group to specify that all time available should be spent drilling NT3-01. (Dan has a statement written describing this). Contingency time should be spent drilling NT3-01 unless already drilled or there is an operational reason not to drill it.

A sampling plan, such as a community sampling plan, needs to be created to guide proponents on executing contingencies. This is a job for CDEX scientists.

Contingency sites are agreed on, but how is the decision made? There will be advance notice as to what time will be available, presumably this will be enough time to make sure the PMT is informed and from the contingency plan, it should be clear what should be done. Co-chiefs should create a decision tree, based on a 5 day limit, returning back to NT3-01 at every decision point, until finished.

Action Item 12: Co-chiefs should include a clear contingency plan in the Prospectus including the priorities identified in during this meeting. Each team needs to come up with text for that prospectus.

Contingency plan needs to describe what should be done with cores in respect to processing and sampling of individual cores – this may be contingent on scientists on board and needs to describe the minimum needs.

Action Item 13: Curewitz to develop a plan for what can be done with the core in respect to processing and sampling plans of individual cores.

7. Updated / Revised Contingency Plans

Thursday started by breaking up into Expedition 314, 315, and 316 working groups to decide on staffing, on priorities, and on contingency plans.

Expedition 314 LWD/Coring Contingency

- During Pilot 8-day window
 - 70 m at NT2-03
- During LWD period
 - If LWD tool time remaining:

- LWD at NT2-04 (long time case); NT2-05, NT2-10 (short-time case), NT1-03 deepen >950 mbsf
- If no LWD tool time remaining, then core:
 - (1) RCB test coring - drill NT3-01 500 m, then continuous coring as time allows (>50 m if possible)
 - (2) NT3-01 0-500 m coring
 - (3) NT2-10 coring
 - (4) NT2-05 coring
 - (5) NT2-04

Discussion on above outcome:

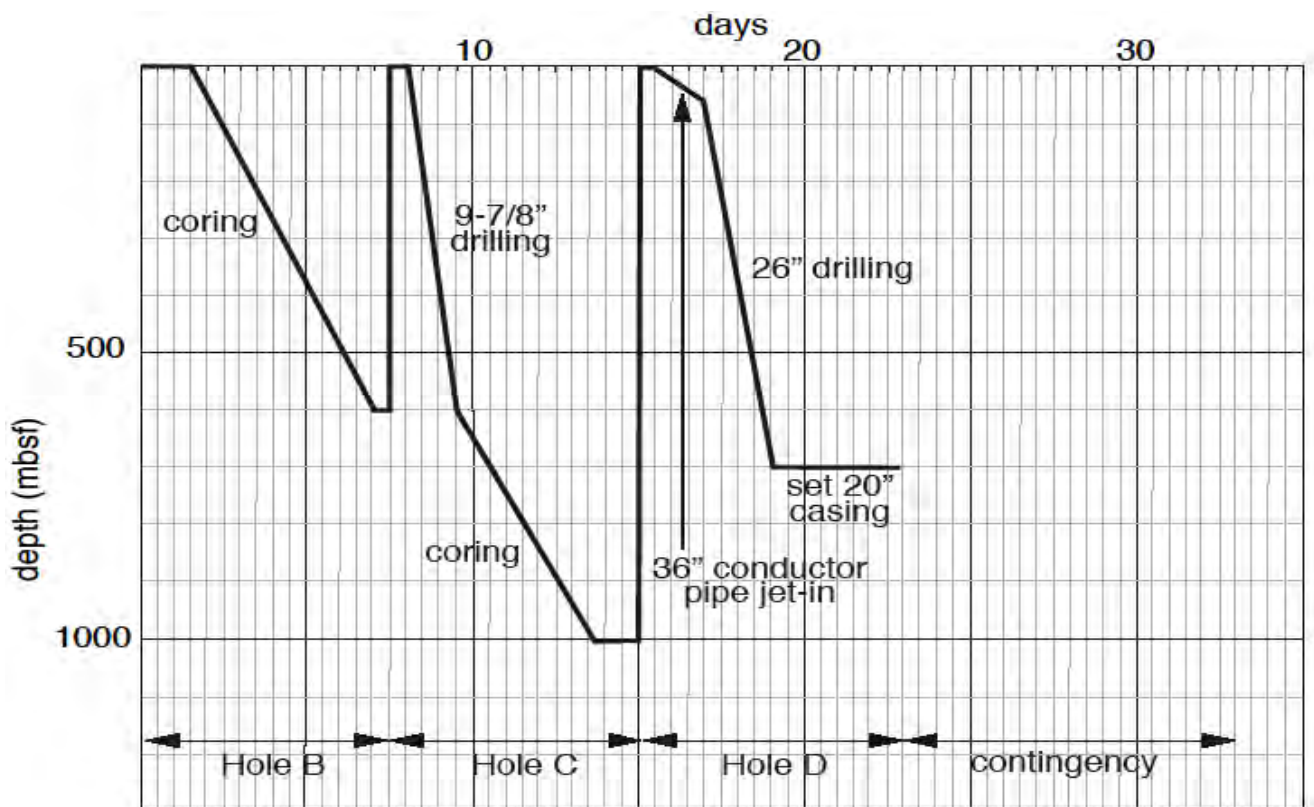
Why is NT2-04 ahead of NT-2-05 and NT2-10?

It will give more information to tie into the seismic data and will give more information on the Kumano basin. The panel does not totally agree – we would need to know the age. It is pointed out that we may have the opportunity to have other observatories, for example, NT2-04 could be a good site for a shallow observatory since it sits above the splay fault.

RCB core testing could be done at NT3-01 (not identified on slide)

There is not much reason for deepening NT1-03 remaining on the list. It should be moved up to the “if LWD tool time remaining” category.

Expedition 315 Contingency

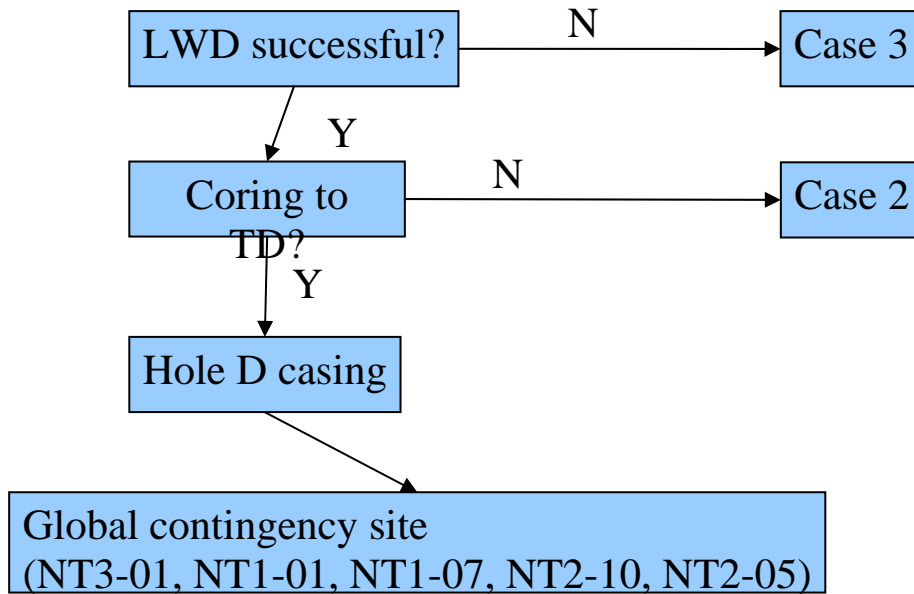


Priorities:

1. Casing of Hole D
2. Coring to TD
3. Wireline logging (in case of unsuccessful LWD)
4. Coring at global contingency site
 1. NT3-01
 2. NT1-01
 3. NT1-07
 4. NT2-10
 5. NT2-05
 6. NT2-04

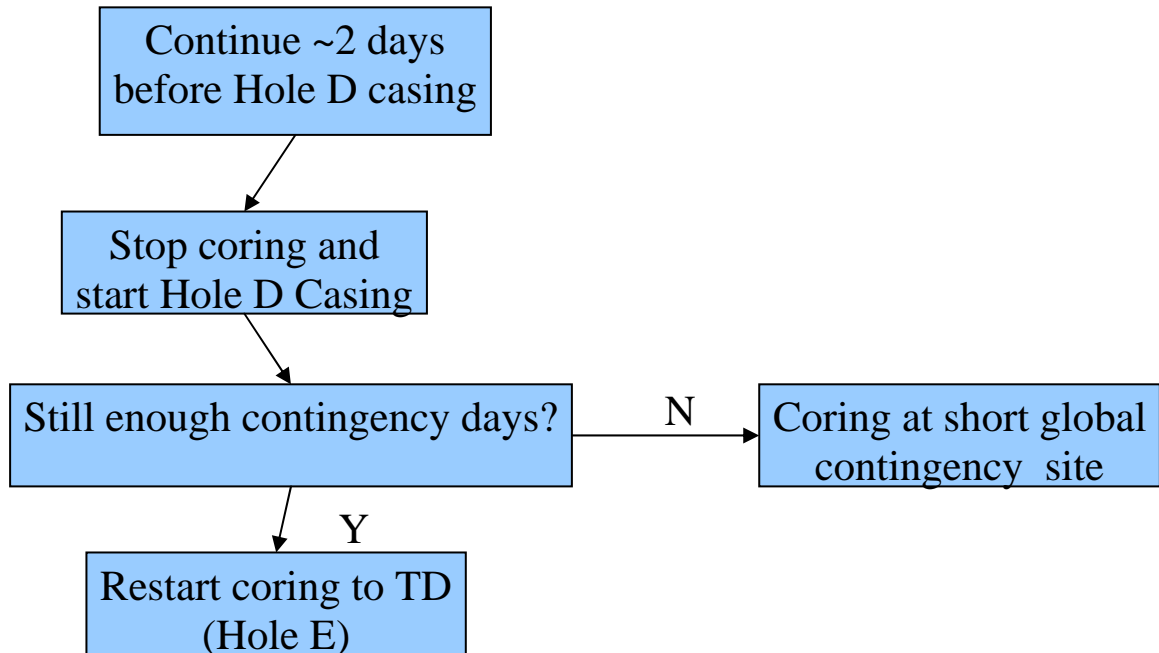
Case 1

Everything goes well



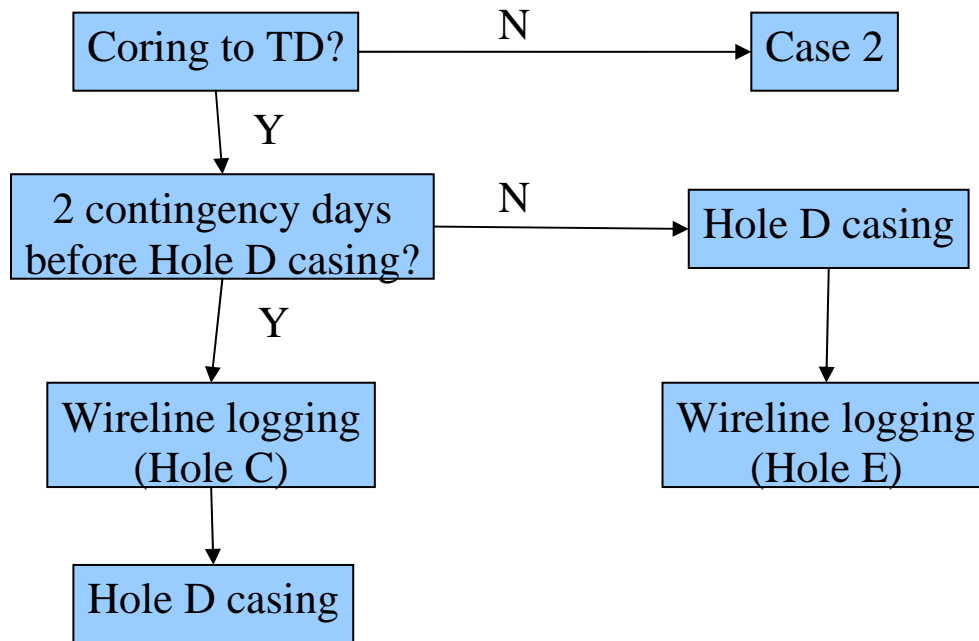
Case 2

Coring cannot reach TD



Case 3

LWD unsuccessful due to mechanical, weather...etc



Case 4

Strong Kuroshio current

Coring and logging
at NT2-04

Discussion on the above scenarios:

In Case 3, the worst-case scenario is wireline logging – this would mean we have to drill a new hole.

Deepening NT2-03 or drilling NT3-01? We know NT2-03 is on the schedule, so the priority is to pick up sites that are not going to be scheduled otherwise. It was pointed out that riser drilling relies on the Kuroshio Current conditions changing. Max current

speed in Kuroshio can be around 6 knots. Riser drilling is still possible but casing could be a problem.

What about NT1 input sites? They should be on the Case 4 list and are higher priority than NT2-04.

Expedition 316 Contingency

Get from Dan

- NT1-07 is dropped from the list because it requires more attention and time. Realistically, NT3-01 is the only site that will be drilled.
- No depth limitation on logging requirements – supposed to *attempt* to log one hole at every site.
- Coring NT3-01 is again the top priority.

Action Item 14: Expedition Project Managers will work up a chart of rotational times for coordinators and team leaders – one chart from start to finish of the key people. IODP will post this on the main website.

8. Overarching NanTroSEIZE Stage 1 Issues

Definition of Stage 1

Kinoshita presented some overarching issues / policies for NanTroSEIZE Stage 1, shown in Appendix E.

- Stage 1 should still include all planned sites (NT1-1/1-7/1-3/2-1/2-3/3-1 riserless).
- The first part of stage1 (Stage1A) includes 3 CHIKYU expeditions.
- The extended stage 1 (Stage1B), which potentially includes NT1-1/1-7/3-1/CORK, may be carried out in Oct-Dec 2008 onboard the CHIKYU.
- Science party (moratorium access) is defined for each part of Stage1 separately.

Sample/Data Distribution Policy

- Anyone can submit a request. However, we will not place an open call for the sample/data request. Instead, the PMT will send out a reminder email to Exp. 317/318 former invitees to announce the deadline. (Treatment in Stage1B will be discussed similarly.)
- S/D request can be submitted after the Aug. 15 deadline, even during the expedition.
- Issue 1-page letter to announce and encourage submission of S/D request.
- SAC officially approves sample/data request, and defines who are involved as shore-based scientists.
- Role of SCs: To give advice to SACs (SCs are NOT the member of SAC).

- Coordination among expeditions will be taken care of by SCs, if, for example, SAC decision for each expedition does not agree with each other (we decided not to form a super-SAC).
- All necessary disciplines should be covered.

Discussion on above sample policy:

Why not an open call for samples?

The deadline is in 2 weeks so there is not enough time to use something like EOS to let the community know. There is no need to go the extra effort to get requests in before Aug. 15th; anyone can submit at any time it is just more difficult for the SAC.

Should the co-chiefs email all applicants of Stage 1 to remind them of the Aug. 15th deadline?

Have to let them know they weren't selected first...

Action Item 15: IODP-MI to add sample deadline to the IODP webpage.

Action Item 16: Project Co-chiefs to issue a NanTroSEIZE newsletter out to the community. IODP-MI to post on website Monday morning...or at least soon.

Action Item 17: Specialty coordinators to encourage potential sample requestors to submit their requests.

Implementation of Rock Physical Properties Science Plan

The implementation of rock physical properties is provided as Appendix F.

A routine way to get the critical physical measurements is cutting off 1 cm of the core and dividing it for the different tests. The PMT should make this practice of saving whole rounds part of the minimum measurements plan. It is up to the Specialty Coordinators to develop the plan further.

The following is a critical part of this policy:

- (4) Preserve material from critical intervals that may not be identified until after the expedition (e.g., on the basis of post-cruise experimental results).

In summary, this policy would ensure a small portion of the core was held back before the splitting the core occurs, preserving it for post-cruise measurements. We know from past experiences that we do not always know where the critical intervals are until after the fact. If we have this preserved whole round available, we can avoid missing crucial data.

The SAC controls samples during the moratorium. After the moratorium, the curator handles the samples. Do the SACs live on beyond the one year moratorium for this case

because the moratorium will go on for more than one year total? Having SAC/PMT say on sampling post moratorium would require a change in IODP policy.

Action Item 18: PMT would like the sample policy for post-moratorium requests to include PMT consultation before whole round material is released. Demian to write up a summary of this to present, specifically for community sampling.

Pore water measurements are taken on the cat walk. This would need to be coordinated with the whole round sampling - is the pore water measurement critical to the other measurements?

Expedition 317 Staffing

A formal disinvite can not be issued until it Expedition 317 is officially off the schedule, to be confirmed at the August SPC meeting. Applicants who have not been selected for an expedition, have not heard anything back. Once the science party is in place, you the applicants can be informed of the status. The IO usually sends this notice out, but traditionally this doesn't happen until the ship sails. It is up to the PMOs to forward the applications, of those not selected, on for future staffing. Once the schedule is published, the USIO will notify Expedition 317 scientists regarding status of their application / invitation. This should include a note regarding additional opportunities within future NanTroSEIZE operations.

Action Item 19: the USIO will notify Expedition 317 scientists regarding status of their application / invitation. This should include a note regarding additional opportunities within future NanTroSEIZE operations.

Reporting and Publications

Operations

CDEX has not yet defined what kind of information should be displayed on the database. Questions to be answered are: (1) Should there be a teleconference weekly with PMT? (2) What level of communication do we need?, and (3) What information do we want to convey and to who? It is agreed that close communication (daily teleconference?) should be kept between the team leader and specialty coordinator and between the Co-chief to Chief Project Scientist, otherwise the daily and weekly reports posted on the web are sufficient for keeping the community informed of operations. The IOs will post the daily and weekly reports, and IODP-MI creates a link to them on the IODP webpage.

Action Item 20: IODP-MI to specify a subset of expedition information that can be publicly accessed and make this set of information uniform between IOs.

Preliminary Report

The question of keeping staff on board for a few days post-cruise was raised, in order to complete the preliminary report. However, it was decided each cruise would figure out a

way to get the reports done post-cruise without everyone in one place as a majority of the report could be done during the cruise itself. It is possible to submit an initial preliminary report, unfinished to a certain extent so long as anything not finished on ship has a plan for completion.

Consensus 21: PMT proposes not to have extra time added to end of expedition for report writing.

Periodic Science Meetings

The first post-cruise meeting, or the editorial meeting is not yet planned – this is a formal meeting to take reports from the ship and turn them into a publishable document.

Would it be possible to combine post-cruise sampling with the editorial review? If so, sometime in May would be the earliest date for this meeting.

If we do just have 1 Editorial meeting for all expeditions, would there be another one once stage 2 is done?

There should be science summary synthesis meetings at some time. This would replace the 2nd post-cruise meeting. Individual 2nd post-cruise meetings don't make sense in this case. PMT proposes to have one science post-cruise synthesis meeting with 314, 315, 316 expedition science parties. When would we have this?

One problem with having the Stage 1 meeting after 314, 315, and 316, is the merge of Stage 2 riser drilling with Stage 1B – there will be a disconnect. We need to keep all of Stage 1 science together.

If this meeting doesn't happen during NanTroSEIZE operations, there are only a few windows of opportunity. We should have a science synthesis meeting in March/April/May 2009. This time is just after Stage 1b and the first riser drilling, so synthesis would not be complete but could be used for the next step.

Who would pay for this? The first meeting would be funded like a 2nd post-exp meeting. IODP-MI may be able to fund as a workshop. JOI also has a way to fund this type of meeting. If this meeting is scheduled, IODP-MI will start trying to find the funding.

2nd or 3rd week of May will be JPGU – It would be ideal to hold a special session on preliminary research, which could be accomplished if the Stage 1 Expedition Meeting is held earlier.

Consensus 22:

Post Stage 1 Expedition Meeting – April – May FY09 (Held at TAMU)

Post Stage 2 Expedition Meeting – Summer 2010

IODP-MI to find the funding for the Post Stage 1 Expedition Meeting.

Stage 1 Operations Review Task Force

It would be useful to assess Stage 1 operations before we get too far along in Stage 2. Operational review is normally held 4-5 months after each expedition. Should it be held any earlier?

Observatory Updates (July 07)

Please see Appendix E for the NanTroSEIZE Borehole Observatory Plan.

- Overall Observatory Plan – Priority and Framework
 - Multiple shallow holes
 - NT3-01CORK
 - CORKS proposed in 603D
 - Jet-in CORK / Sediment CORK (Addendum or Eng. Dev. Prop.)
 - Deep riser holes
 - NT2-3 Mega splay (3500m, 100C, >5 years)
 - NT3-1 Mega thrust (6000m, 170C, > 5 years)
 - NT2-3 retrievable station needs reconsidered (“learn step-by-step” vs. “once set you should keep it”, etc.)
- Reorganization
 - JAMSTEC Observatory Framework being reorganized
 - Observatory meeting planned in Oct-07 to redefine a practical roadmap that meets NanTroSEIZE science objectives – needed to get funding approval
 - International framework to promote observatory required
- PMT submit recommendations for NanTroSEIZE Observatory

Feasibility study on system for NT2-03

Get slides from Shin'ichi

Hole Suspension Cap – The PMT had many questions and much concern over this development:

- Is this going to be deployed in Stage 2?
- Is this going to actually happen? It can happen, but the current problem is budget.
- Why would this not be permanent?
- Why would you replace it with a Christmas tree?
- Why is the top sealed, when the bottom is sealed?
- What is the need for a 10,000 psi cap? Safety issue - double to triple secure the safety.
- Why can't the CORK be the seal?

Action Item 23: PMT to write out a specific set of questions to clarify issue of the hole suspension cap.

9. NanTroSEIZE Stage 1B (Oct-Dec 08 RL operations)

Draft Schedule

- Co-Chief Selection - Due by Oct. 31, 2007
- Pre-Expedition Meeting - Nov. 2007 ~April 2008
- Planning & Scientific Prospectus - Due by 31 Dec. 2007
- Call for Participation - 1 Jan. - 29 Feb. 2008 (moved to Oct 2007 – see below)
- Staffing - Due by May 2008

Discussion on above Schedule:

Call for participation: Should it be suggested to the PMO that we keep the same list of applicants or do we put out a new call and tell people we will hold the original applications? Stage 1B has the same objectives as Exp 317, but it is still a different expedition than people applied for originally. We could hold the applications and also call for new applicants.

Consensus / Action Item 24: Issue a New Call for participants for Stage 1B, but have previous applicants notified to update their old application if they wish to be considered.

Call for participation could come out Oct 2007, be advertised at AGU and be finalized by the end of the year. PMOs could have there list together by end of Feb, and everything would be sped up by a few months. This does not mean the prospectus has to be completed earlier.

Pre-expedition meeting dates could be moved; budget guidance should be received before scheduling the meeting.

The call for participation and staffing dates are the critical dates for the processing of applications to begin – CDEX will decide the other dates on internally.

PMT questioned timing of the Stage 2 call? Should it come out at the same time or be staggered to avoid confusion?

Later discussion moved towards issuing the Stage 1 and Stage 2 calls at the same time, promoting both at AGU and leaving the Stage 2 call open longer.

Action Item 25: Issue Stage 1 and Stage 2 calls for participation at the same time (October 2007) promoting both at AGU and leaving the Stage 2 call open longer.

Co-chief selection

We have a list of potential co-chiefs for this expedition – do we want to ask for additional candidates or do we want to get additional recommendations?

Do we want to take advantage of the group present and makes suggestions for the IO? There were 4 recommendations, so we could just forward those on or trim it down. There may be a national balance issue that comes into play. CDEX would like to have between 6 and 10 candidates total. Keeping in mind that the 4 recommended candidates have already done all the work, the original 4 names should be in the pool. All the names don't have to come from PMT, SPC will also supply additional names. Historically, the PMT recommends 2 people, + alternates perhaps.

Consensus 26: PMT recommends preferred candidates for co-chiefs of the Oct-Dec. expedition: Soh, Underwood, Saffer, and Kopf

Potential Future Riserless Drilling

Unscheduled Tasks: Priorities

- Highest Riser:
 - Riser drilling at NT3-01 and temporary observatory
 - Stage 4 permanent monitoring in NT2-03 and NT3-01
- Highest Riserless:
 - Coring and downhole measurements at NT3-01
 - Shallow Observatory above/in mega-splay system (several candidate sites exist: NT3-01, NT2-03, NT2-01, NT2-04)
 - Coring and downhole measurements at inputs sites NT1-07 and Basement coring at NT1-07 and hydrologic measurements
 - Observatory installation at inputs site(s) and NT1-03
 - Core new sites NT2-05 and NT2-10
- Middle Riserless:
 - NT1-01
 - Observatory installation at NT1-03 frontal thrust
 - Second Observatory at mega-splay
 - NT2-04 coring & logging
 - Deepening NT1-03

Discussion on priorities:

Shallow observatory as a top priority? You may not be able to install a shallow observatory until the coring and downhole measurements are done at NT3-01.

Complicated vs. simple observatory installations can make a big difference in achieving the overall hypothesis testing. Path forward on observatories will be discussed later.

Having an observatory is a top priority. We need to preserve an observatory installation at an input site.

NT1-07 is more important than NT1-01. Would you rather drill NT1-01 or do more at NT1-07?

If we wait too long to find out what the inputs are, we could find out we got it all wrong after the fact. The connectivity of the inputs and interpretation of the other sites is very important.

What is the impact of waiting another year to install the shallow observatory? What is the urgency? The shallow observatory is a necessary milestone for riser drilling. We will learn a lot from the shallow observatory that will aid in developing the riser drilling plan.

Consensus among the group is to do at least one inputs site and do it right.

Kopf raised funding for some additional infrastructure.

What is the priority between NT1-01 and NT1-07?

- NT1-07 – if we can measure the pore pressure in sands that are sub decollement
- Corking the frontal thrust doesn't tell us much about fault mechanics – maybe NT1-01 should fall off the list?
- NT1-07 has a low chance of being linked to the cable.

Priorities for Stage 1B –Discussion 1

-Can a CORK-style installation be done by CHIKYU in this time frame? Can the existing JR plan be modified for use on CHIKYU?

-Casing size is different, platform is different – it would be difficult to operate a lot of the equipment. We would need more than a year of procurement.

-Is any installation possible? Can we change the design to match the capabilities of the CHIKYU.

-Logistics of installing the CORK have been researched and there are solutions. CDEX has to know if they can go ahead with an observatory plan in the next few weeks.

It is suggested to start simple by presenting an idea of the most basic operation and going forward from there. The first installation should be straight forward. The simplest viable option would include: pore pressure measurement, seismometer, temperature strain (bare minimum). An option is to drill multiple holes fitted with different instruments if that makes the problem less complex.

Again, is NT3-01 the right place to do this? Should we go to a place we have already cored or that is already cased? Pressure and Temperature sensors need to be together but seismometer can be on its own.

A “go” or “no go” from CDEX in the next two weeks is vital to including an observatory in Stage 1B. An answer is needed by the August OTF meeting. Although an early

observatory is vital to the program, it will not happen Oct – Dec 2008 if unless CDEX approves the operation within 2 weeks. A strong statement from the PMT has to be made to CDEX to have any possibility of success.

Earl Davis has the SCORK. Ralph Stevens has the SeisCORK. These are still just proposals at this time – they will not be ready in time for Stage 1B.

For NT2-01 can we make an installation with a pore pressure and seismometer, and present this as an option.

2 roads :

1. Exp 317 plan – coring at 2-3 sites
2. Attempt to do some level of observatory deployment.

If we feel #2 is so risky that doing it the following year is better, then we stick with option #1. The risk on riser holes is raised if we don't get the observatory done this next year. June 09 is the earliest possibility to install an observatory if it is not accomplished in 08.

Should the outcome today be that we do Exp. 317, and with the next operation, we install the observatory (this gives 22 months to plan) as soon as possible after the CHIKYU comes out of maintenance?

What is lost by not putting the observatory in FY08 and waiting 6 months and doing it in June 09? If the losses are too damaging, then we try to figure something out. This depends on several factors such as: (1) start date of observatory data downloading, and (2) the affect on the plan for the Stage 2 riser hole?

The very simplest case would be to install a removable seismometer in NT2-01.

As part of the PMT, an observatory task force should be formed to make sure the communication among observatory people is happening and make sure the NanTroSEIZE team is ready for the observatory installation.

Priorities identified:

- An observatory
- Coring etc of NT1-07
- Coring etc. of NT3-01

Priorities for Stage 1B – Discussion 2

- Assume one 8-week expedition duration
- Question: Can a CORK-style installation be done by CHIKYU in this time frame?
Can the existing (JR-based) plan be modified for use on CHIKYU?
- Proposed Priorities:

- An observatory above/in the mega splay region (as simple as necessary to get it done). Location could be NT3-01, NT2-03, or NT2-01.
- Coring and downhole measurements of NT1-07
- Coring and downhole measurements of NT3-01

Action Item 27: PMT propose 2 paths and do some rapid investigation of the 2 paths in the next 2 weeks to present to OTF.

Proposed Implementation Plans (2 paths):

- **OPTION A - Preferred**
 - Oct-Dec 2008 Expedition - Coring and DH measurement at NT3-01, plus ultra-simple observatory measurements at NT3-01 *OR* NT2-01 [+/- coring at NT1-07]
 - Next riserless opportunity (June or Nov 2009?) - complete NT1-07, NT1-01, install seis/geodetic/? CORK
- **OPTION B - if no installation in Oct-Dec is possible**
 - Oct-Dec 2008 Expedition - Coring and DH measurements (casing?) NT3-01, NT1-07 [+/- NT1-01, NT2-10, NT2-05].
 - Next riserless opportunity (June or Nov 2009?) - Install borehole observatory in megasplay region

Action Item 28: Small observatory group to discuss intensely what the possibilities are for the observatory portion of Option A and Option B. Observatory team should consist of: Demian, Masa (chair), Araki, Liz, Harold, Achim, with Harold more of the observer). CDEX to receive a comment by August 1.

Time and budget preclude a full blown multi-component observatory; therefore, the PMT has come up with this set of options forward. The observatory group is a subset of the PMT, so it will be the PMT that provides the sketch to CDEX with consultation of the proponents.

Option A

We know we can come up with a design for an observatory, but can it be implemented in 12 months?

We need to investigate all the possibilities with Option A: 1) ultra-simple design or 2) something more complicated. If Option A is the one to investigate, in the next week, the observatory group needs to actually make a sketch of the proposed observatory and bring this to CDEX and the funding agencies. Plan is to just show them one model for a first step.

CDEX needs to know that this sketch is coming and that they need to react quite quickly.

If the sketch is presented, can the funding and design be approved in this condensed time frame? We are asking for something above and beyond and we appreciate the flexibility from CDEX to even consider this.

Design should include pore pressure or seismometer in this ultra-simple observatory. Either would provide useful science and both would be nice...

NT2-03 – should this be on this list? It is back-up in case we don't have enough information to install in NT3-01. We need to emphasize importance of science. Based on that, maybe NT2-01 and NT3-01 are preferred. Pore pressure in drawing for NT2-01 and seismometer in drawing for NT3-01. We should specify this once we present the options.

Option B

If we are going with Option B, the exact day to day operations don't need to be specified at this time. Just that coring and downhole measurements are planned and an observatory may be a possibility. OTF will be seriously planning FY09 budgets in Nov. 2007, they would need to know more about the proposed observatory in Option B by this time.

Option B will also require coming up with a sketch to present to CDEX.

Potentially this Aug. we will know if we can do Option A or Option B and then go from there.

10. Beyond Stage 1

CHIKYU Project Plan

Chikyu NanTroSEIZE Project Plan 2-2

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006 (H18)	SIT	(Doc & Insp.)				SIT	(Doc)	Shimokita SIT		ODS		
2007 (H19)	ODS							(Doc)	IODP NanTroSEIZE (Stage 1-RL)			
2008 (H20)			(Doc & Insp.)		non-IODP					IODP NanTroSEIZE (Stage 1-RL)		
2009 (H21)	IODP NanTroSEIZE (Stage 2-R1)		non-IODP			IODP NanTroSEIZE (Stage 2-R2)				IODP NanTroSEIZE (Stage 2-RL)		
2010 (H22)	non-IODP							IODP NanTroSEIZE (Stage 3)				

There is no non-IODP work scheduled for 2009 slot.

The riserless expedition planned in Nov 2009 does not have to be at that exact time – this is just hypothetical time scale, a rough estimation. CDEX would prefer to have a block of time of 7 months for IODP; within that 7 months, when riser vs riserless happens is not as important.

The riserless slot in 2009 will be an OTF issue – they will decide what to put into the slot. Riserless slot should not be designated as “NanTroSEIZE” since this is not yet determined.

Staffing of Stage 2 Riser Expedition

Stage 2 NT2-03 Site (Riser) Drilling Staffing Plan

Exp. 3XX	Leg 1 (60 days)	Leg 2 (40 days)	Leg 3 (40 days)	Leg 4 (40 days)	Onshore S. Pd	
Co-Chiefs	1, 2	3	5	7	3	1~8
		4	6	8		
Science Party	1	2	3	4		All
Specialty Coordinators						All
Exp. Project Manager	1	2	3			1~3

The application form should be clear since some of the expedition will be in 2008 and some in 2009 – very difficult for many to schedule. We'll have to be prepared for complexities in the staffing. Some connection between the leg 1 and leg 2 scientists will be important.

Schedule of Stage 2

- Prepare overview document - due by Sep. 30, 2007 (publish as soon as possible)
- Call for Participation - Jan 1 to Feb 29, 2008
- Pre-Exp Meeting - May 2008 (plenty time after Stage 1 and after budgetary guidance)
- Staffing and scientific Prospectus - due by June 2008.

6 months is usually a good goal for lead time in staffing but this is up to the IOs. Both of these calls (stage 1 and 2) for staffing could go out this fall, making sure the call and schedule are well defined. We can keep the call open a little longer for Stage 2, but it would be good to publicize during AGU.

The question was asked about reducing staff during the riser operation. The PMT can recommend to PMOs what staff level is needed, then it is in the PMOs' realm. They can choose to send fewer staff or not. Experience with Stage 1 will give a good indication as to the level of staffing needed. As of now, we do not know how fast the cores will come up and what kind of effort it will take to get the core to the labs. At this point, a full staff should be planned for. Specialty coordinators do count as one of the staff as they will occupy one of the berths. In summary, for the staffing call, at this point we just tell the PMOs we are planning for a full science compliment.

Stage 2 Summary

- NT2-01 A/B (riserless)
 - Install observatory system in previously-drilled hole 1 of pair
 - Drill, perform wireline packer test in hole 2 of pair
- NT2-03: (riser)
 - Drill, log, core to mega-splay (~3250 m)
 - Install casing to TD
 - Install initial, simple observatory - perhaps T and seismic array only (?)
 - Precise location remains to be determined with 3D seismic
 - Choose mega-splay target at ~3000 mbsf depth (for appropriate P,T), plus crossing by ~250 m (3250 total target)
- NT1-01, NT1-06 (might be replaced by NT1-07) (riserless)
 - Return for CORK observatory installations (and basement coring/logging?)
- NT2-04: (riserless)
 - Core, LWD to ~1200 m TD
 - Install monitoring system
- Any carry-over of other high-priority science from Stage 1
- NT1-04 (riserless) (might be replaced by NT1-07)
 - Core, log, install CORK

Stage 3 Summary

Main objective is riser drilling for NT3-01 with temporary observatory – this is all that remains at the present time.

- NT3-01: (riser)
 - Deepen to ~6000 m TD with LWD, casing
 - Sidetrack to take continuous core across faults (bottom - cement strainmeter?)
 - Install removable preliminary observatory (seismic array and pore pressure)
- NT1-03 (riserless)
 - Deepen to ~1200 mbsf in sed package
 - Contingent – only if Stage 1 results and seismic survey results show it to still be high science priority
- NT2-02*

- Contingent – will be re-evaluated and drilled if justified by results of previous stages and 3D seismic survey

Stage 4 Summary

Just NT2-03 and NT3-01 to deploy final monitoring system in boreholes and revisit riserless operations at unfinished sites.

- NT2-03 and NT3-01:
 - Deploy “final” monitoring system in boreholes.
- Revisit and complete riser-less operations at any unfinished sites that still have high priority for drilling, observatories.

11. Third Party Tools

HTPF

Is this tool needed for the Stage 2 operations?

There may be a problem with the tool diameter. The packer diameter is 5 3/8” - this would be a very tight fit if it works at all.

PMT requests some documentation on the history of use to better evaluate.

We have asked CDEX to come up with a development plan. CDEX has asked the PMT to decide if it would be useful for them to expend funds on. Will this be useful and does it have high scientific value?

Action Item 29: PMT to take the HTPF into consideration (evaluating the usefulness of HTPF to NanTroSEIZE), create a small subgroup to submit a response to Greg Myers. This group could includes: Masa, Liz, Demian, Harold, and Seigfried to draft a document response.

If PMT makes endorsement on the HTPF, this does not mean they necessarily have to use it on the expedition.

Ship time will be needed for testing. Once the plan is blessed by the SAS, OTF would decide how to allocate testing time.

SCORK

If there is a request for a tool to be used on a platform that isn't already an IODP tool, then it must go through the 3rd party process. The SCORK will also have to go through the 3rd party process as well. For initial development, the tool can not be imperative to the results of the expedition. What is the earliest for deployment of SCORK? If funding to build the SCORK is proposed for FY2009, the first use at sea would be 2010 at the earliest.

12. “Must-do” to Accomplish NanTroSEIZE Goals

The Stage 1 plan is now firm, but we can reprioritize Stages 2-4.

Present CORK Prioritization:

- 1) Shallow observatory above megasplay.
- 2) One observatory in the inputs area.
- 3) Relatively shallow on a thrust fault where we are trying to get a measurement of pore pressure in the thrust.

Seismometer and pore pressure do not have to be in the same place – it would be much easier if they are not. In the deep holes, they have to be in the same hole which means in the simplest case, one or the other would have to be chosen.

High priority is broad-band seismometer (high temp) in the hole – things like this need to be reprioritized as this just won't happen.

If we can not get to the simple observatory in NT2-03 by 2011, we have big problems meeting the overall objectives.

Major milestones of NanTroSEIZE are the priority of the CHIKYU. Need to know exactly what these milestones are between now and 2013. PMT needs to provide this information to SPC.

Figure out the scientific goals we need the operations to achieve.

Consensus 30:

Must-do to achieve the goals of NanTroSEIZE

- *Drill into fault(s) at seismogenic depths, sample (NT2-03 and NT3-01 riser drilling)*
- *Perform long-term monitoring at seismogenic depths (install initial AND long-term riser hole monitoring systems at NT2-03 and NT3-01)*
- *Drill into and sample fault(s) at shallow, non-seismogenic depth (NT2-01, NT1-03, and NT2-03)*
- *Monitor strain, seismicity and pore pressure related to the earthquake cycle around up-dip limit (mega-splay) (NT3-01 and NT2-01 shallow observatories to include at least broadband seismometer, pore pressure sensor - need 2)*

- *Sample inputs (at least NT1-07)*
- *Determine ambient state of P, T in faults - at least one shallow and one deep (either DH measurement of T, P or CORK-based at NT2-01 and NT3-01 or NT2-03)*
- *Determine ambient state (P, T) at inputs (either DH measurement of T, P or CORK-based at NT1-07)*

This list is to be used as a guide to draft a document to forward to SASEC. This list is extensive but is still a reduction of the original plan.

Is NT1-03 an absolute must-do to achieve the goals of NanTroSEIZE?

Our list doesn't include direct measurement of ambient stress – this is harder to measure, but an ideal goal would be the direct measurement of tensor stress.

Geological history should not be an important part of NanTroSEIZE. If this is the case, coring NT3-01 becomes less important. Will this tell us anything about earthquake processes? Perhaps we are trying to recommend something that may not be a must do to core (NT3-01)?

Why do we need to measure ambient conditions? It is a “walk before run” example. You have to start with a baseline to know change. First order question is “what is the value?”, then “how is it changing?”.

What about spot coring NT3-01? Or just LWD? What is necessary? It isn't clear that coring needs to be done, not that the core wouldn't be valuable. Core will be very important for installing / planning the observatory.

How does coring out part of the Kumano basin tell us much? Do we have to go to NT2-04 for example?

Do we have to have 2 shallow observatories to achieve the goals? Yes.

Action Item 31: Curewitz to investigate if a casing survey is possible or not for Stage 1 or 2.

Action Item 32: Installing monitoring system in the riser hole – is this considered a riser or non-riser operation? Question for CDEX

Action Item 33: PMT to find out how fast is riser drilling versus coring at certain depths. Is our match for how we think things will get done match reality? Are we going to be able to fit our operations into the allotted time frame?

Action Item 34: Harold, Masa, Tom, and Shin'ichi to translate the must-do list into a general 4-yr program plan.

We should ask the geochemists to make clear the necessity of size and frequency of data.

Action Item 35: Ask Jeff Wheat to submit a statement as to what are the necessary geochemistry requirements.

13. Future Meetings

Pre-expedition meeting will take place next spring.

A subset of the PMT could meet at AGU for a 1-day meeting, December 9, 2007.

Consensus 36: Next NanTroSEIZE PMT meeting to be held on December 9, 2007, pre-AGU, in San Francisco. IODP-MI to send out more information soon.

Notes from CDEX:

Submit your application for CHIKYU by end of month.

Baggage requirements for the cruise, and other details will be available on the website.

The EPM will provide the information on basecamp.

Sample data request deadline Aug. 15.

Appendix A

Operations Task Force updates

NanTroSEIZE PMT meeting

July 2007

San Francisco



Operations Task Force - Jun 07

- *NanTroSEIZE* Issues

- Removal of Expedition 317 from SODV schedule
 - ☐ SODV start date: ~mid February
 - ☐ Fishing union restrictions (no operations March-May)
 - ☐ Start with Eq Pac -- allows more flexibility
- Chikyu Riser (NT2-03) delayed until Jan 09
 - ☐ Start with 2 months of operations (Jan-Feb 09)
 - ☐ Undefined break for Maintenance and/or non-IODP ops
 - ☐ Continue with NT2-03 after break
 - ☐ Staffing model revisions



OTF- Jun 07 *NanTroSEIZE* Issues

- Riserless time on Chikyu - Oct-Dec 2008
 - ❑ ~ 2 months of operations
 - ❑ PMT needs to prioritize operations
- Potential for NanTro SODV ops in FY09
- Next Riser Hole after NT2-03?
 - ❑ SPC to prioritize 3 riser programs at OTF
 - ❑ SASEC - strong statement of priorities before 2013
 - Achieving major milestones in NantroSEIZE
 - Maximize use of Chikyu for riser drilling



FY09

ODS	Safety Holes	NanTro LWD	NT2-03 Riser Prep	NanTro NT1-03 NT2-01	Inspection and Maintenance	Non-IODP Work	NanTroSEIZE Riserless
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New Jersey
Shallow Shelf

FY09 Schedules

FY08

FY09

FY10

Aug Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec

Marianna
or
Shatsky

Canterbury

Wilkes

Some combination of
1-2 IODP Expeditions and Non-IODP work

SODV

NanTroSEIZE
Riserless

NanTro Riser

Maint

IODP Expedition Availability (Apr - Mar)
(2 month riserless + 5 months riser)

Chikyu

MSP

Great Barrier Reef



Appendix B

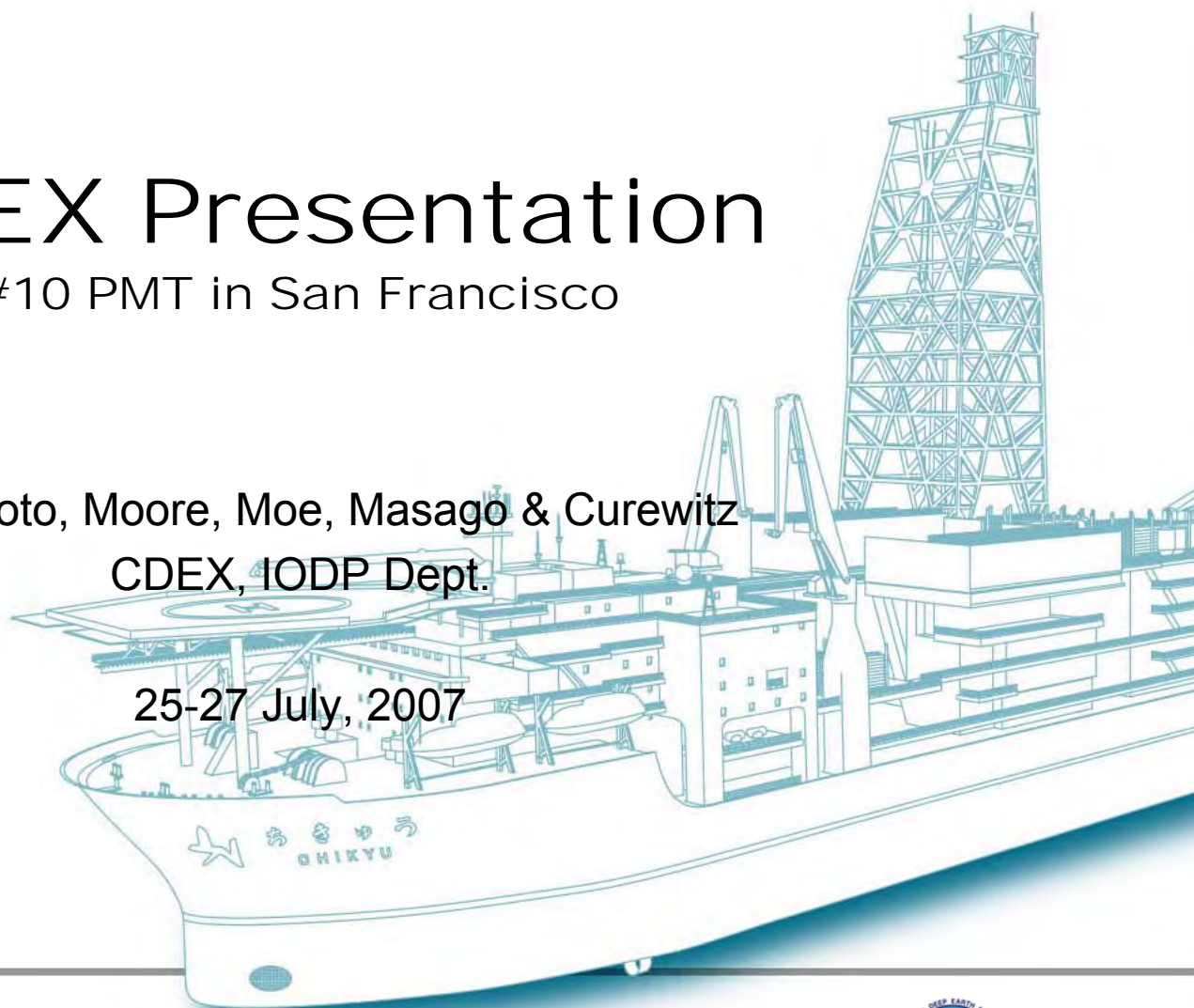
CDEX Presentation

#10 PMT in San Francisco

Kuramoto, Moore, Moe, Masago & Curewitz

CDEX, IODP Dept.

25-27 July, 2007



Contents -1/2

 Status Report

 Addendum 603-B-Add

 Stage 1 Expeditions Status

- #314 (LWD Transect)
- #315 (Megasplay Rser Pilot)
- #316 (Thrust Faults)
- Contingency Plan
- Staffing
- Boarding Plan
- Publication



Contents -2/2



Chikyu Expedition Schedule

- USFY08-10 Plan
- Remain of Stage 1
- Stage 2 Riser



Observatory

- CORK
- Retrievable System @NT2-03
- LTBMS



Others

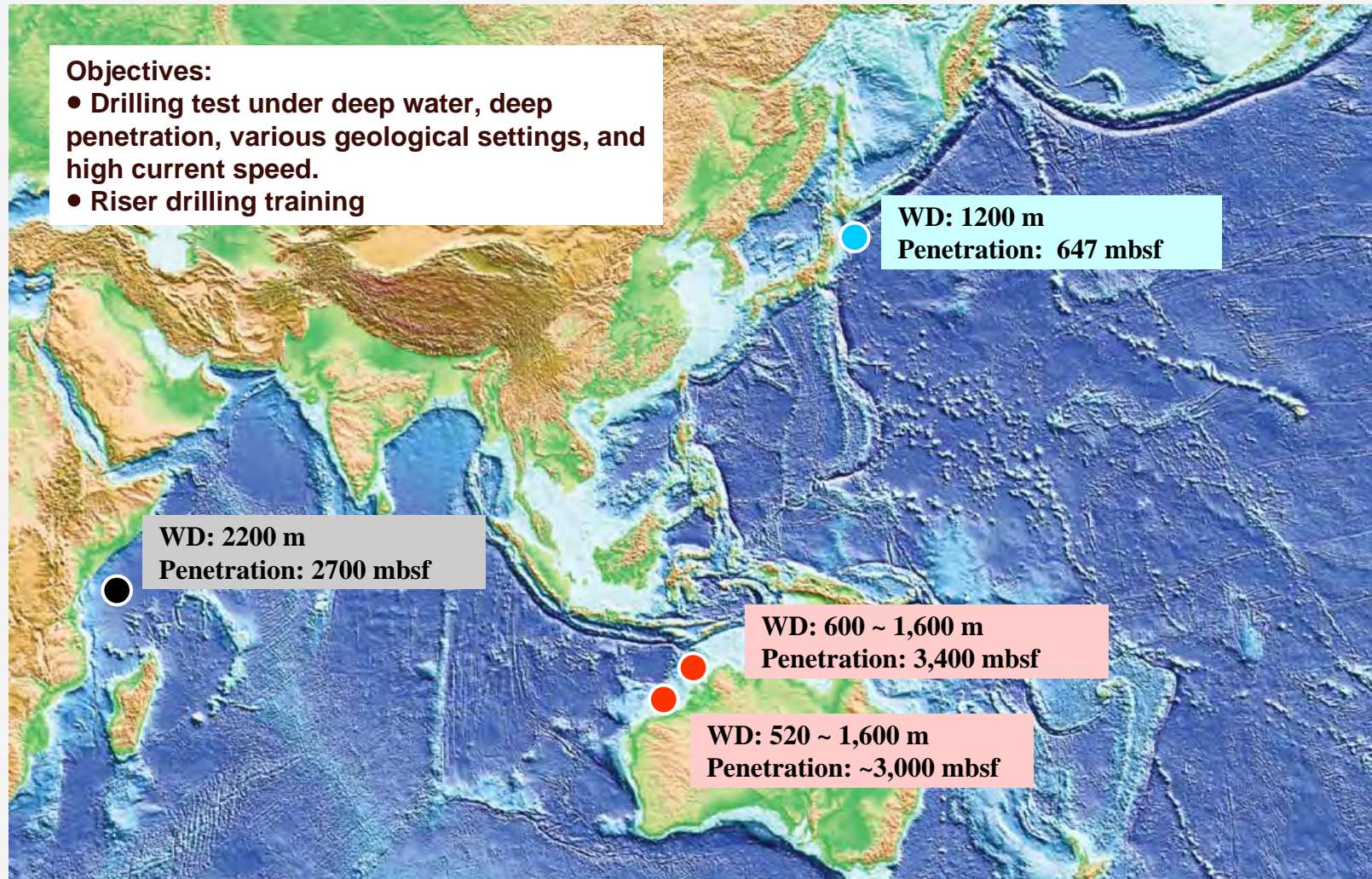
- Lab KAIZEN Plan

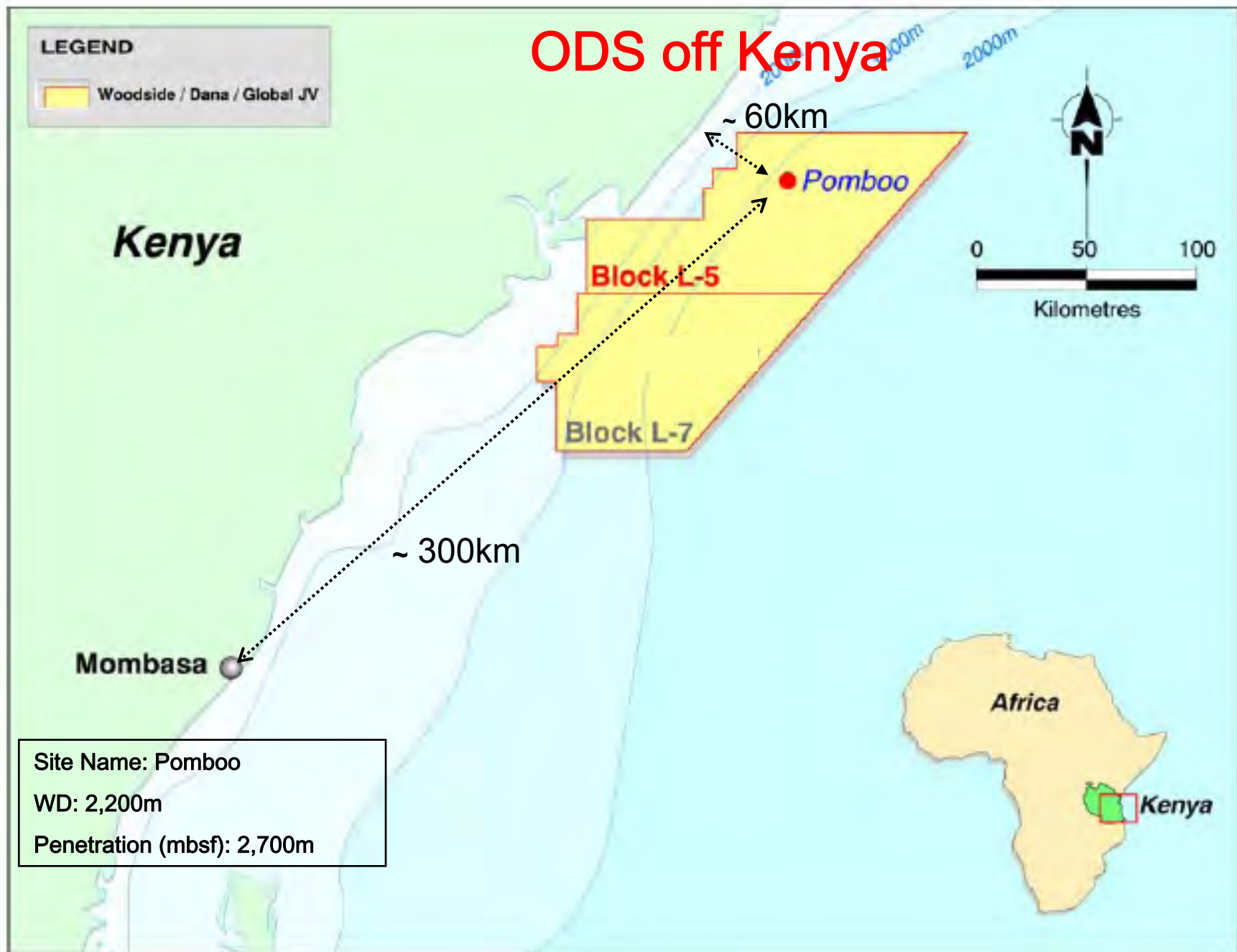


ODS Plan

Objectives:

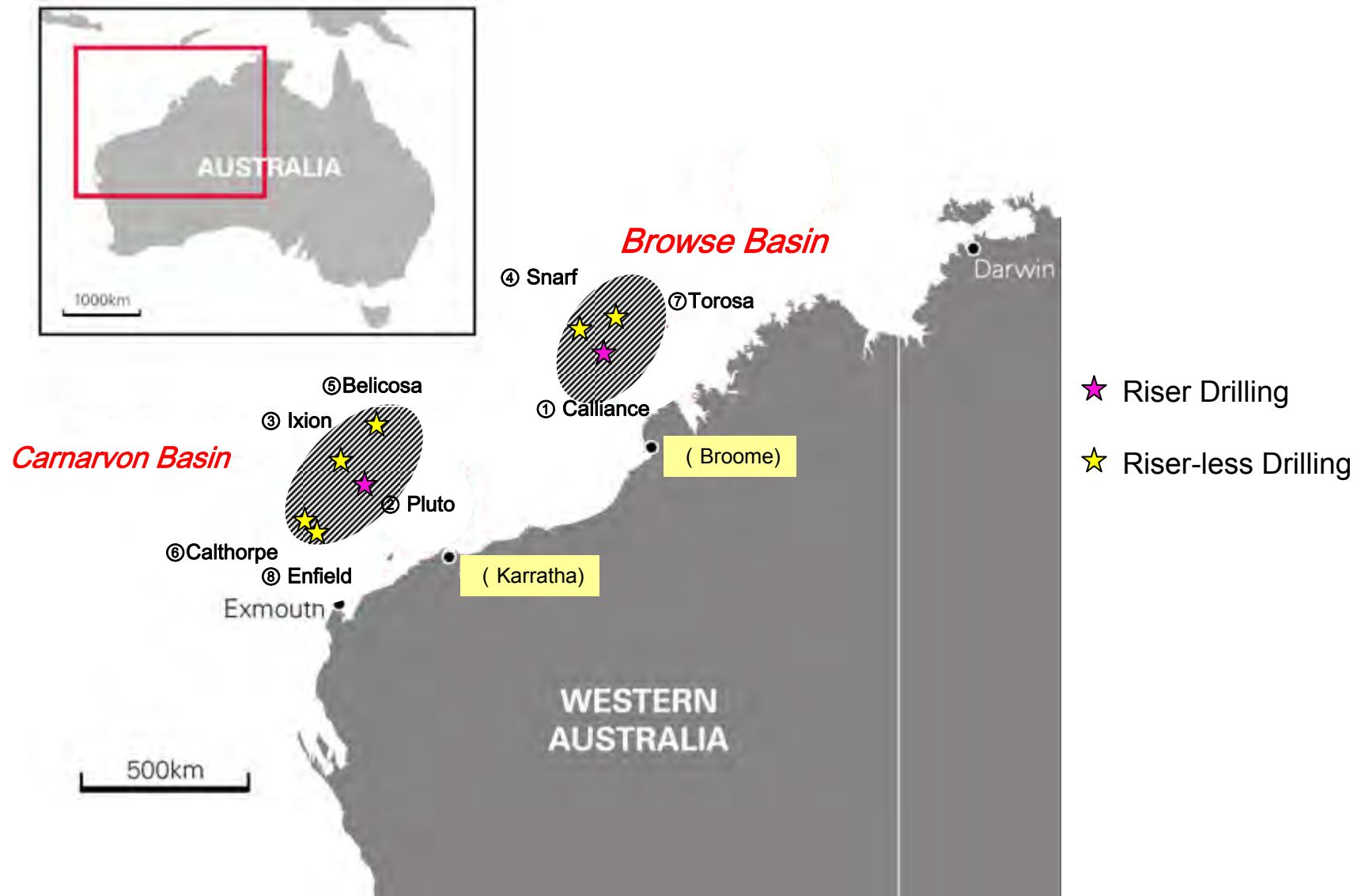
- Drilling test under deep water, deep penetration, various geological settings, and high current speed.
- Riser drilling training





ODS off Western Australia

JAMSTEC/CDEX



海外試験掘削 (ODS: Oversea Drilling Shakedown) 総括表

【ケニア沖】

	掘削計画名	行動	掘削海域	水深(m)	掘削深度(m) (海底下)	実施予定期間	ヘリポート	特 記 事 項
1	Pomboo	探査試験掘	ケニア北部沖	2,193	2,694	12月初～1月末	Mombasa	水深2,000m超の大水深でのライザー掘削の成功。 強潮流下での掘削の実施。

※ ケニア沖掘削コンソーシアム: Woodside(豪)30%、DANA(英) 30%、Global Petroleum 20%、Repsol(西)20%

【豪州北西大陸棚】

	掘削計画名	行動	掘削海域	水深(m)	掘削深度(m) (海底下)	実施予定期間	ヘリポート	特 記 事 項
1	Calliance	探査・評価試験掘	Browse	500	3,700	2月下旬～4月初	Broome	中水深(<600m)のライザー掘削。
2	Pluto	探査・評価試験掘	Carnarvon	1,000	2,200	4月中～5月中	Karratha	傾斜掘り、並行掘削
3	Ixion	上部孔井作業	Carnarvon	1,340	1,200	5月中～6月初	Karratha	36インチ、9. 5/8インチケーシング設置
4	Snarf	上部孔井作業	Browse	1,440	1,860	6月初～6月中	Broome	36インチ、9. 5/8インチケーシング設置
5	Belicosa	上部孔井作業	Carnarvon	1,400	560	6月中旬	Karratha	36インチ、9. 5/8インチケーシング設置
6	Carthorpe	上部孔井作業	Carnarvon	830	700	6月中旬	Karratha	36インチ、9. 5/8インチケーシング設置
7	Torasa	上部孔井作業	Browse	470	3,200	6月下旬～7月初旬	Broome	36インチ、9. 5/8インチケーシング設置
8	Enfield	上部孔井作業	Carnarvon	640	1,000	7月上旬～7月中旬	Karratha	36インチ、9. 5/8インチケーシング設置

(1)及び(2)は Woodside社(100%)。(2)のPlutoは2010年生産開始予定の最後の評価井。この天然ガスのほとんどは日本に輸出予定。

(3)のIxionは、Woodside社(50%)、Total(30%)、MIMI(20%)が権益を持つ。

※MIMI: Japan Australia LNG (MIMI) Pty Ltd

三菱商事、三井物産が50%出資した豪州石油・ガス開発のための会社

※Woodside、Totalとも 豪州の石油開発会社

(4)のSnarfは、豪州大陸棚周辺の大水深ガス・油田のなかで最も有望なものであり、WoodsideがShell、BP等のメジャーと共同開発を目指している。

(6)および(8)は、三井物産の100%現地子会社(Mepau)が40%の権益をもつ鉱区。

Summary

- BOP set and operation at 2200 m WD
- Drilling to 3700 mbsf
- Riser Drilling under high stream condition(2.5 kts)
- High performance of DPS
- Deviated drilling conducted
- Clue training and efficient operation

Schedule to #314



Arrive at Singapore (27 July)

- Loading on/off
- Lab re-start



Depart on 11 Aug



Arrive at Yokohama (28 Aug)



Doc works (29 Aug - 10 Sep)



Depart Yokohama (11 Sep)



Arrive at Shingu (13 Sep)

- Loading on



Pre-spud meeting of #314 (20 Sep)



Depart Shingu port on 21 Sep



NanTroSEIZE

Chikyu Operation Plan (FY07-08) before June 07 OTF Meeting



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006 (H18)	SIT		(Doc & Insp.)			SIT	(Doc)	Shimokita SIT				ODS
2007 (H19)	ODS							IODP NanTroSEIZE (Stage 1)				
2008 (H20)			(Doc & Insp.)		IODP NanTroSEIZE (Stage 2)							



CDEX Proposal for FY08-10

2007											
US FY07									US FY08		
JP FY H18			JP FY H19								
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ODS (Oversea's Drilling Shakedown)							Dock		IODP:NanTroSEIZE Stage1/RL		

2008											
US FY08									US FY09		
JP FY H19			JP FY H20								
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP Stage1/RL		Dock & Inspection			Non-IODP				IODP:NanTroSEIZE Stage1/RL		

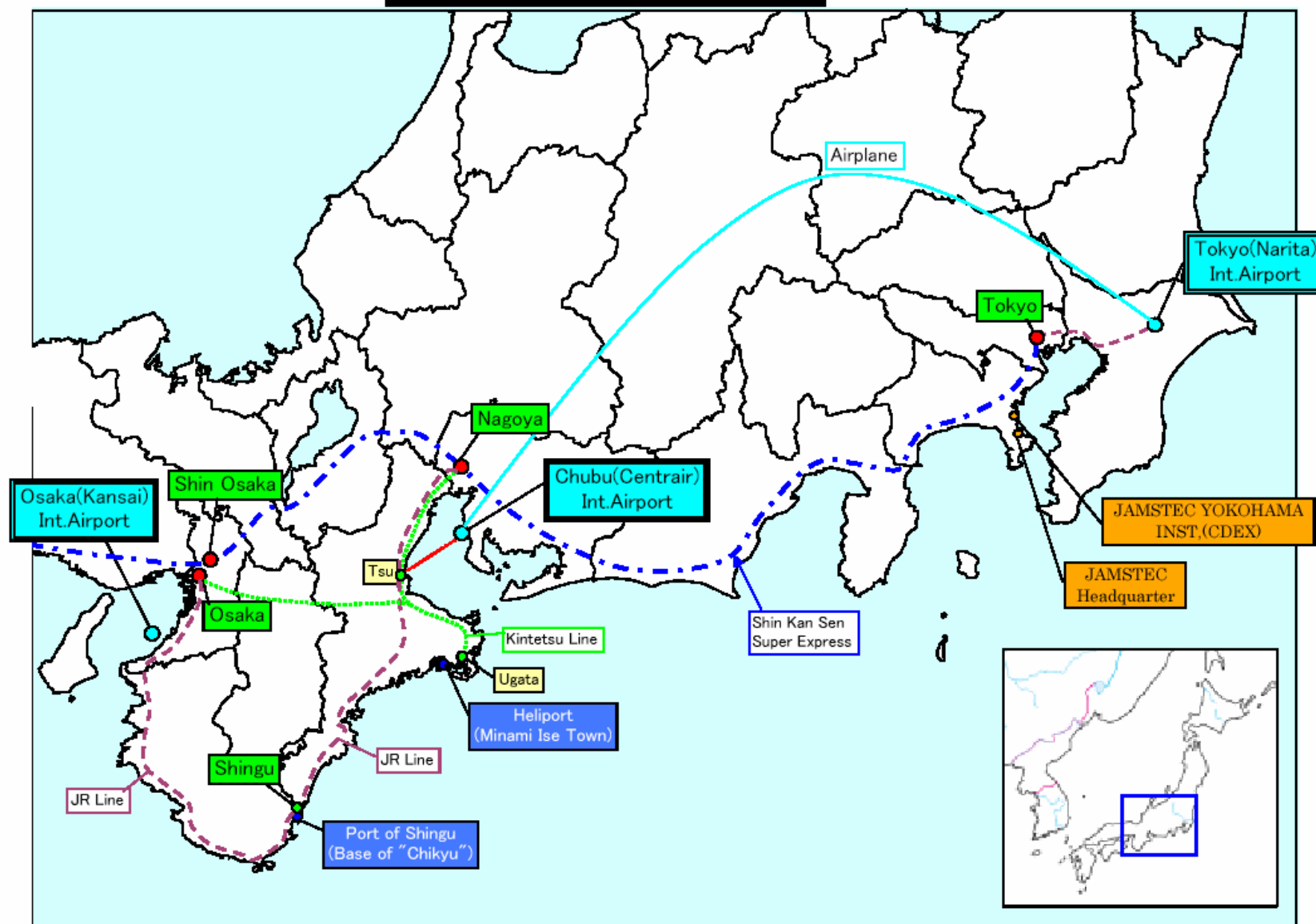
2009											
US FY09									US FY10		
JP FY H20			JP FY H21								
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP:NanTro Stage2/Riser		Dock	IODP Expedition Availability (5 Months for Riser + 2 Months for Riserless) per Year								

2010												
US FY10									US FY11			
JP FY H21			JP FY H22									
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
			IODP Expedition Availability (5 Months for Riser + 2 Months for Riserless) per Year									



General Location Map in Japan








2007.06.01 / CDEX,JAMSTEC



HUET, SS & FF



Policy & Guidelines

-  Responsibility of shipboard scientists
-  IODP sample, data, and obligation policy (on IODP-MI web site)
-  Lab safety policy
-  IT policy
-  Expedition science communication guideline
-  3rd Party Tools Guidelines (on IODP-MI web site)
-  IODP 2nd Post Expedition Meeting Guidelines (on IODP-MI web site)



NanTroSEIZE Brochure getting ready to go!

Scientific Ocean Drilling Sheds Light on Earthquake Mechanics

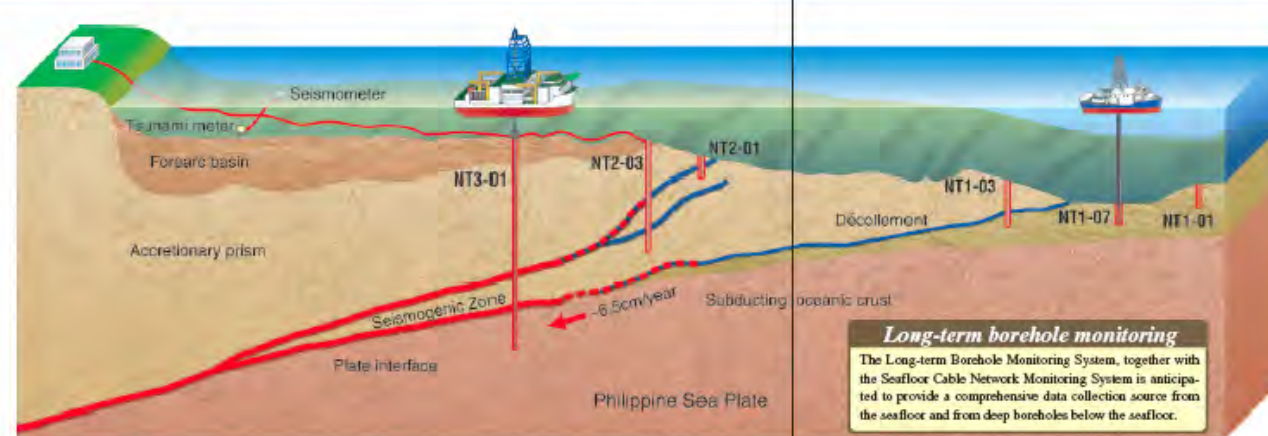
Four stages of NanTroSEIZE expeditions:

Stage 1

During the first stage, six sites will be drilled. The targets are the incoming sediment of Shikoku Basin and underlying oceanic crust, the frontal thrust system at the toe of the accre-

tionary wedge, the mid-wedge megasplay fault system, and approximately 1,000-meter deep holes at two sites planned for later deeper penetrations of the seismogenic zone faults.

One borehole observatory installation is planned for a pilot hole to monitor pore-fluid pressure, strain, temperature, and seismicity above the plate boundary.



Stage 2

Stage 2 operations will involve drilling the first of the two deep riser holes using the drill ship *Chikyu*, targeting the megasplay fault zone at 3,000–3,500 meters below the seafloor for the first time in history.

Stage 3

Stage 3 is a very challenging expedition that will focus on drilling 5,500–6,000 meters deep into the seismogenic zone and across the plate interface into the subducting crust. Once drilling is complete, an initial monitoring system will be deployed in the borehole. This monitoring system shall remain in place for one to two years, while the "final" long-term monitoring package is readied.

Stage 4

Stage 4 will install final long-term observatory systems into two ultra-deep boreholes. In Japan, a system is proposed to deploy a seafloor fiber-optic network for seismic monitoring and other applications in the Kumano Basin region. One exciting possibility is that the NanTroSEIZE boreholes ultimately could be connected to this network in Stage 4, allowing real-time access to earthquake data.

FACT

Violent, large-scale earthquakes occur repeatedly.

Mega-earthquakes have repeatedly threatened or destroyed cultural achievements and entire civilizations. Along the Nankai Trough, large-scale earthquakes have occurred every 90 to 147 years over the last 500 years. The Hōei Earthquake (1707), thought to be the strongest in recorded history along the Nankai Trough, resulted in the destruction of a wide area from offshore Shikoku to offshore Shizuoka Prefecture.

100 million people live along coastal Japan.

More than 10,000 fatalities are estimated in a worst-case scenario of a large-scale earthquake occurring in this region. In addition, 60% of the global population lives within 50 km of the coast, and 75% of big cities (>2 Million pop.) are coastal cities. Earthquakes of magnitude seven or above occur at shallow depths along ocean margins.

Recent discovery: a new kind of "slow earthquake."

"Very-low-frequency" earthquakes, about magnitude four, were discovered and observed in the Nankai Trough area; however, their seismic waves aren't found in the frequency range of normal Earthquakes (Ito and Obara, 2006).



Current Status

- 1) Staffing
 - Done (except 1 slot of #315)
- 2) Sample & Data Request
 - Start with a new registration system via WEB
 - Deadline is 15 Aug.
 - Coordinated by 15 Sep.
- 3) Boarding Schedule
 - Under coordination w/ co-chiefs
- 4) Expedition Preparation
 - Scientific Prospectus issued
 - Welcome letters are sent out
 - Communication tool (Basecamp) is implemented
- 5) Laboratory KAIZEN
- 6) Stage 2 Planning
- 7) Rest of Stage 1 Planning



Chikyu Lab. Readiness

IODP minimum measurements

Biostratigraphy Smear slides/Thin sections VCD
digital photo temperature Moisture and density/porosity
Core logging - NGR, GRA, MS Downhole logging

- ◆ All equipments have been tested and are ready to use.

IODP standard measurements

NRM PWV (logging) Thermal conductivity
XRF XRD X-ray CT Color reflectance etc.

- ◆ Most equipments are ready, or otherwise alternative measurements are available.

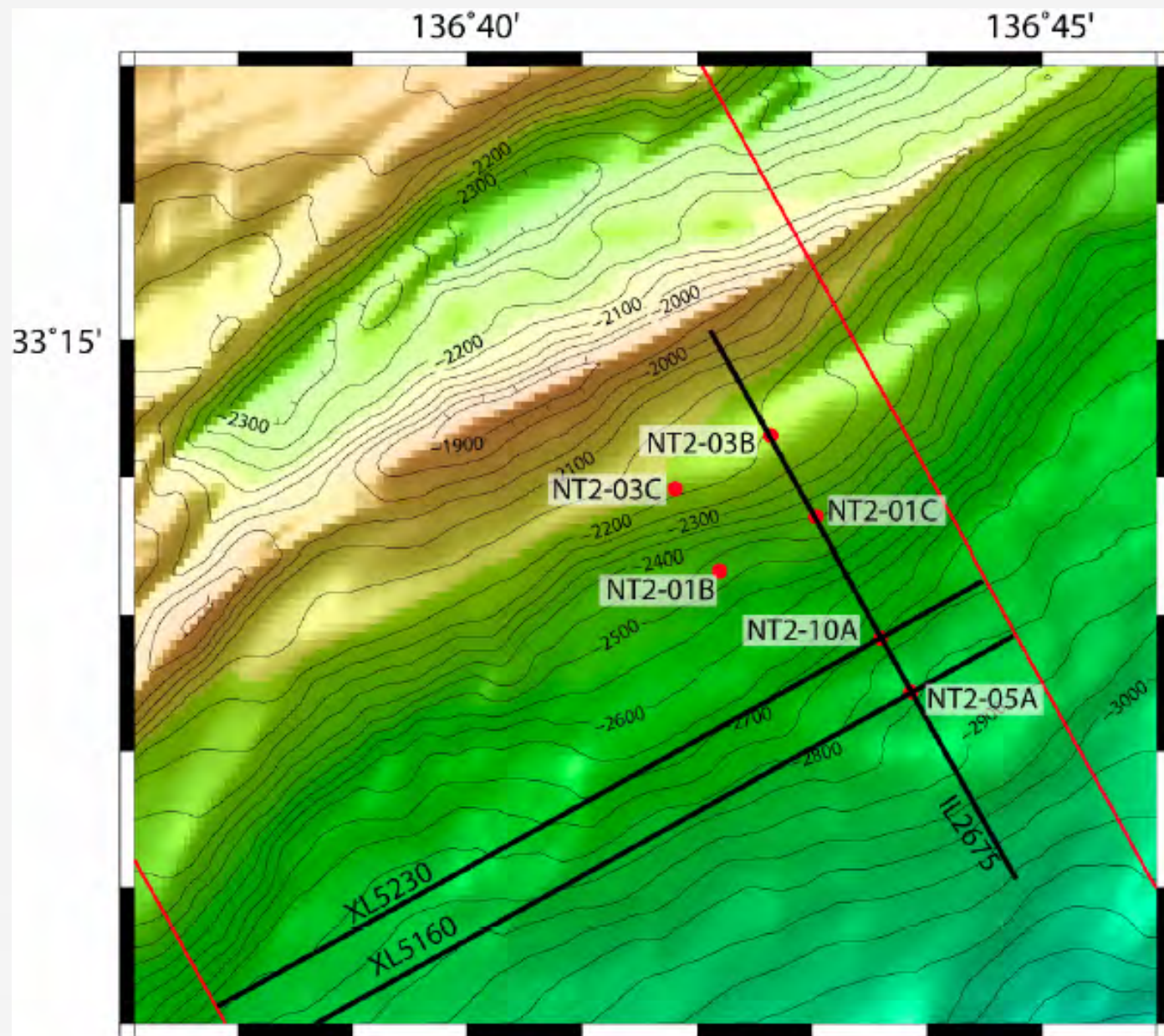
Lab operation will re-start from 27 July.

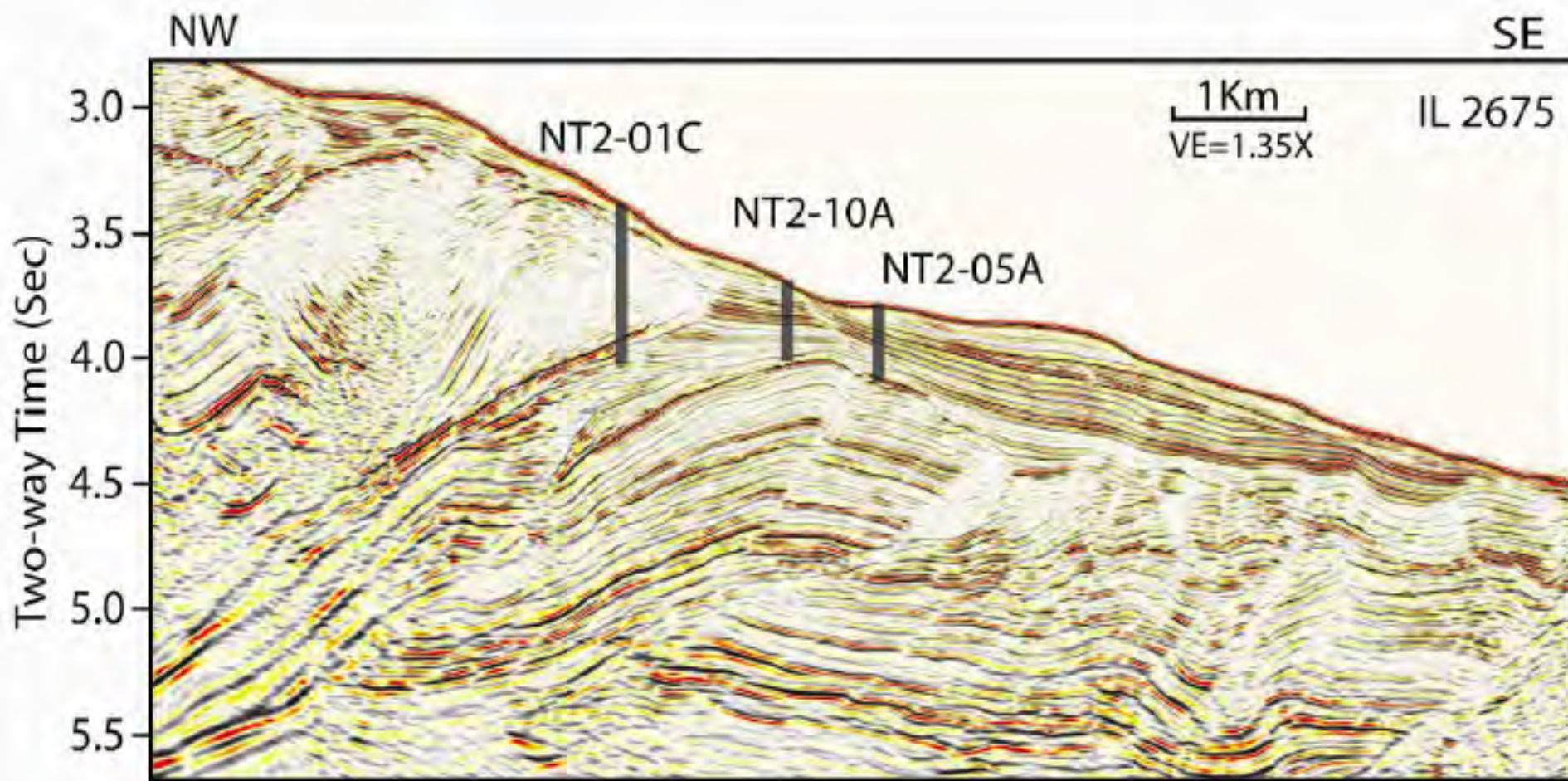
Lab modifications are planned during the dock work and during exp. 314 (LWD).

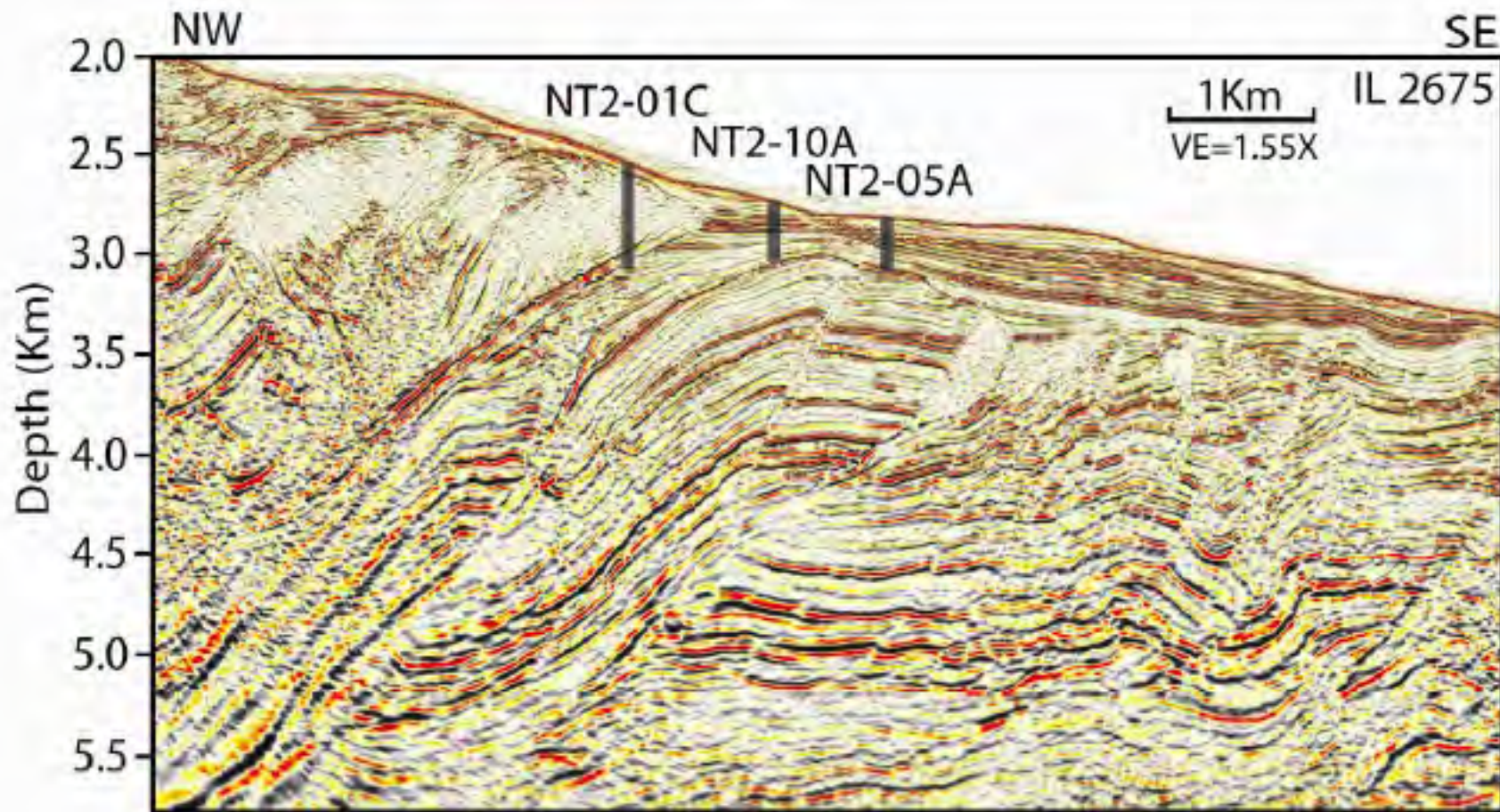


Addendum 603-B-Add









NT2-05A: Request clearance to 300 mbsf
> EPSP Approved to 275 m

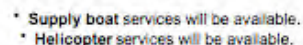
NT2-10A: Request clearance to 350 mbsf
> EPSP Approved to 325 m



Stage 1 Planning



2008



NanTroSEIZE

Stage 1 & 2 Plan



Exp. #	Exp. Name	Target / operation	Dates	Co-chiefs
Stage 1 (riser-less)				
314	LWD transect	Six LWD holes with max penetration 1400 mbsf	21 Sep. - 16 Nov., 07	M. Kinoshita H. Tobin
315	Megasplay riser pilot	Coring of the upper 1000 m of the future riser site	11 Nov. - 19 Dec., 07	J. Ashi S. Lallemant
316	Thrust faults	Coring of frontal thrust and megasplay faults	13 Dec. - 5 Feb., 08	G. Kimura E. Screaton
Stage 2 (riser)				
3XX	Megasplay riser	3.5 km riser in 24 weeks		8 co-chiefs



Expedition 314- LWD Transect



Staffing (Finished on 7/4)

- US (5), JPN (5), EU (5), Korea (1)



Scientific Prospectus (Web 7/11)

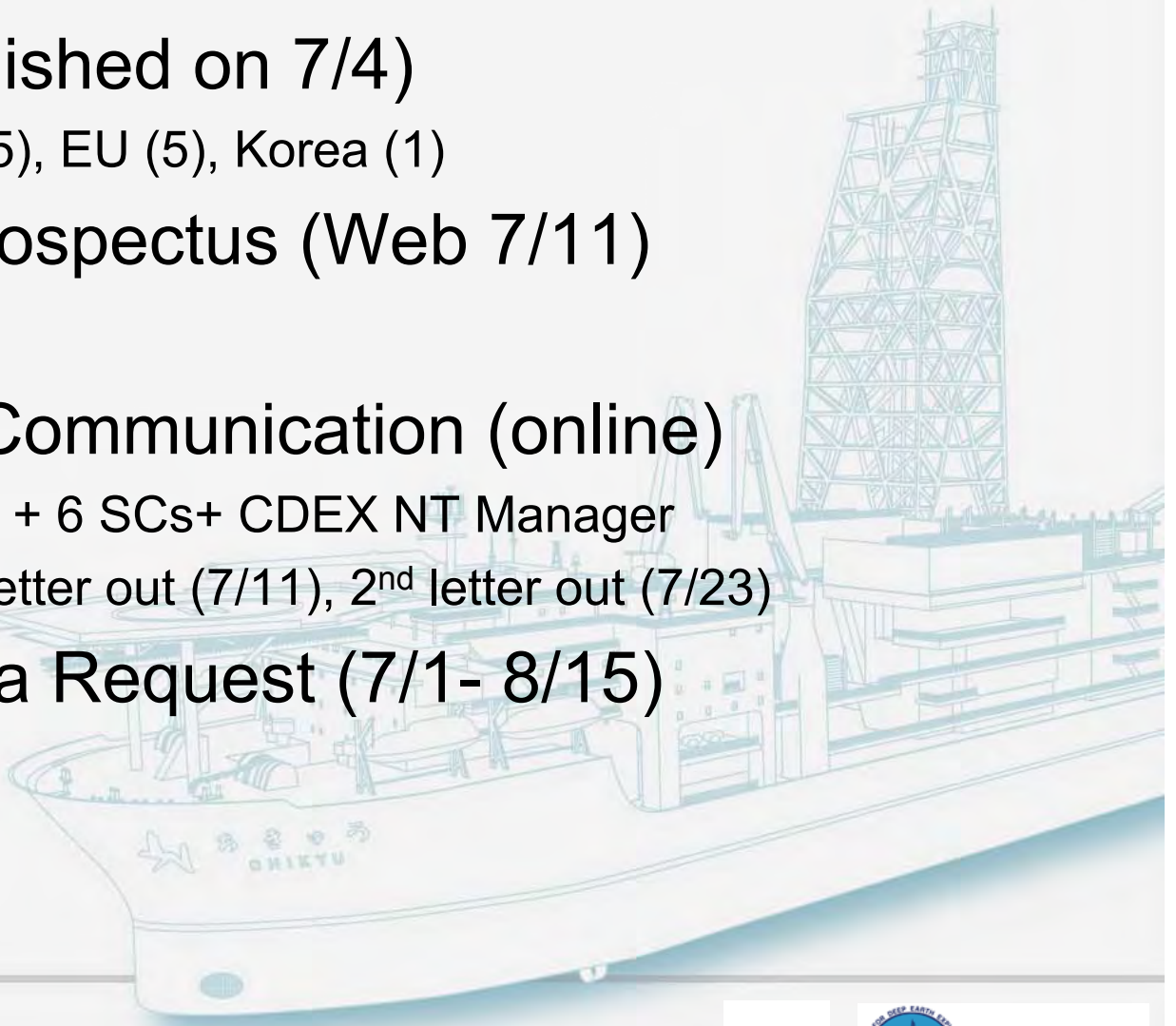


Expedition Communication (online)

- Science Party + 6 SCs+ CDEX NT Manager
- 1st Welcome letter out (7/11), 2nd letter out (7/23)



Sample/Data Request (7/1- 8/15)



CDEX Logging Service

NT Stage 1 Chikyu Logging Plan

- To use all logging budget for LWD tools

LWD

- VSP (22 days); density/porosity, sonic, resistivity (28 days); annular pressure & MWD (2 months)

Wireline Logging as Backup

- (sFMS & sonic Velocity)

Data Processing

- Data Q/C
- Image logs processing
- Sonic Velocity



Contingency Coring Plan

Riser Hole GeoTechnical Coring (Pilot Hole Drilling)

- Core 70m sediment at NT2-03 site
- Drill and core 70m with HPCS (1.5 days)

RCB Coring System Test (LWD Drilling)

- To test the Rotary Coring Barrel (RCB) test at NT3-01 site
- Drill 600m by RCB, core 50m (3.5 days)



Expedition 315

—Megasplay Riser Pilot—

Staffing (still 1 PP [EU] not fixed)

- US (8), JPN (8), EU (9)
- Boarding schedule arrangement: *in progress*

Scientific Prospectus

- *In final editing, will be on the web soon*

Sample & data request started (online)

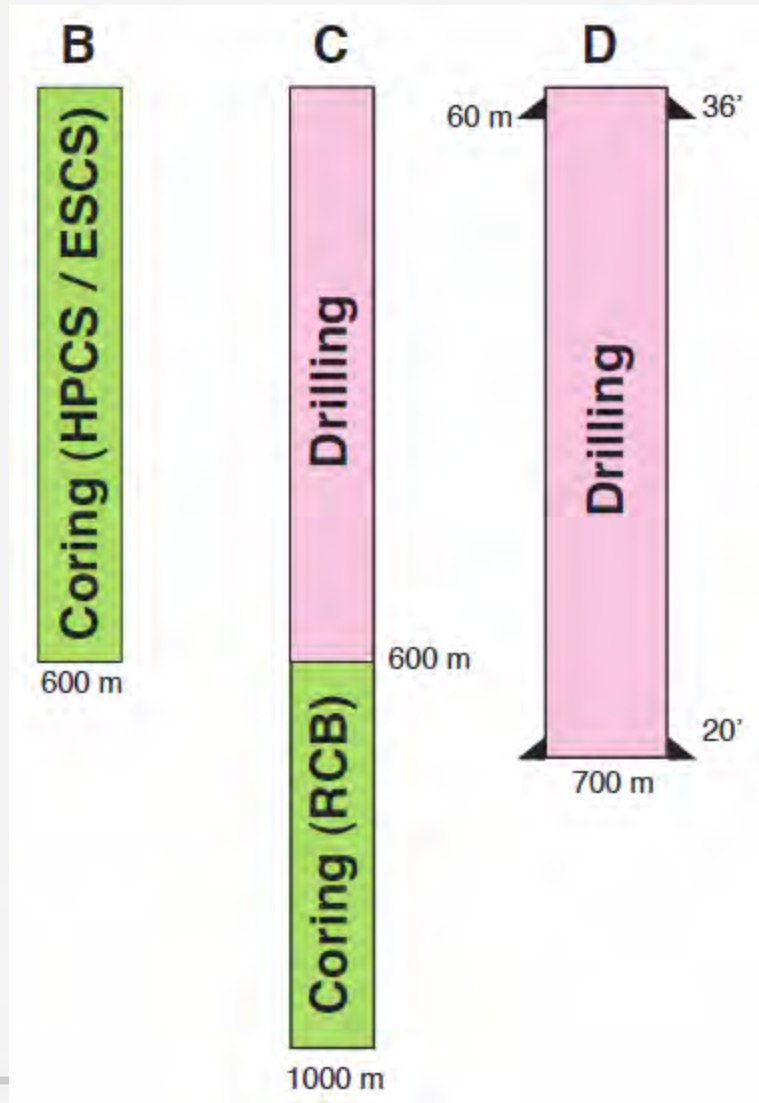
- ~15 Aug.

Start discussion about science plan

- *Communication through Basecamp*



Operation Schedule



- HPCS/ESCS coring to 600 m (Hole B): 7.5 days

- RCB drilling& coring to 1000 m (Hole C): 7.5 days

- Drilling & casing for future riser hole (Hole D): 8 days

- Contingency: 10 days

Total 33 days



Rest of Stage 1 Planning



CDEX Proposal for FY08-10

2007											
US FY07									US FY08		
JP FY H18			JP FY H19								
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ODS (Oversea's Drilling Shakedown)							Dock		IODP:NanTroSEIZE Stage1/RL		

2008											
US FY08									US FY09		
JP FY H19			JP FY H20								
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP Stage1/RL		Dock & Inspection			Non-IODP				IODP:NanTroSEIZE Stage1/RL		

2009											
US FY09									US FY10		
JP FY H20			JP FY H21								
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP:NanTro Stage2/Riser		Dock	IODP Expedition Availability (5 Months for Riser + 2 Months for Riserless) per Year								

2010												
US FY10									US FY11			
JP FY H21			JP FY H22									
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
			IODP Expedition Availability (5 Months for Riser + 2 Months for Riserless) per Year									




Chikyu NanTroSEIZE Project Plan 2-2


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006 (H18)	SIT		(Doc & Insp.)			SIT	(Doc)	Shimokita SIT		ODS		
2007 (H19)	ODS							(Doc)	IODP NanTroSEIZE (Stage 1-RL)			
2008 (H20)			(Doc & Insp.)			non-IODP				IODP NanTroSEIZE (Stage 1-RL)		
2009 (H21)	IODP NanTroSEIZE (Stage 2-R1)		non-IODP			IODP NanTroSEIZE (Stage 2-R2)				IODP NanTroSEIZE (Stage 2-RL)		
2010 (H22)	non-IODP							IODP NanTroSEIZE (Stage 3)				



Riser-Less Operation in 2008

 Oct.~Dec. (substantially 2 months +?, no budget guidance yet)

- What science priority in the rest of the Stage 1 sites? (in case of Chikyu operation)

 CORK at NT3-01 (in case of Chikyu operation)

- Lessons from scientists as a general idea
- Collaboration w/USIO is not actually started
- Concerns
 - Complicated Operation
 - Different type of CSG size (tools are required)
 - New for CDEX engineers
 - Procurement of tools (time, money...)
 - Development of system (final design, time, money...)



Rest of Stage 1 (Riser-less)

DRAFT



Co-Chief Selection

- Due by Oct. 31, 2007



Pre-Expedition Meeting

- Nov. 2007 ~April 2008



Planning & Scientific Prospectus

- Due by 31 Dec. 2007



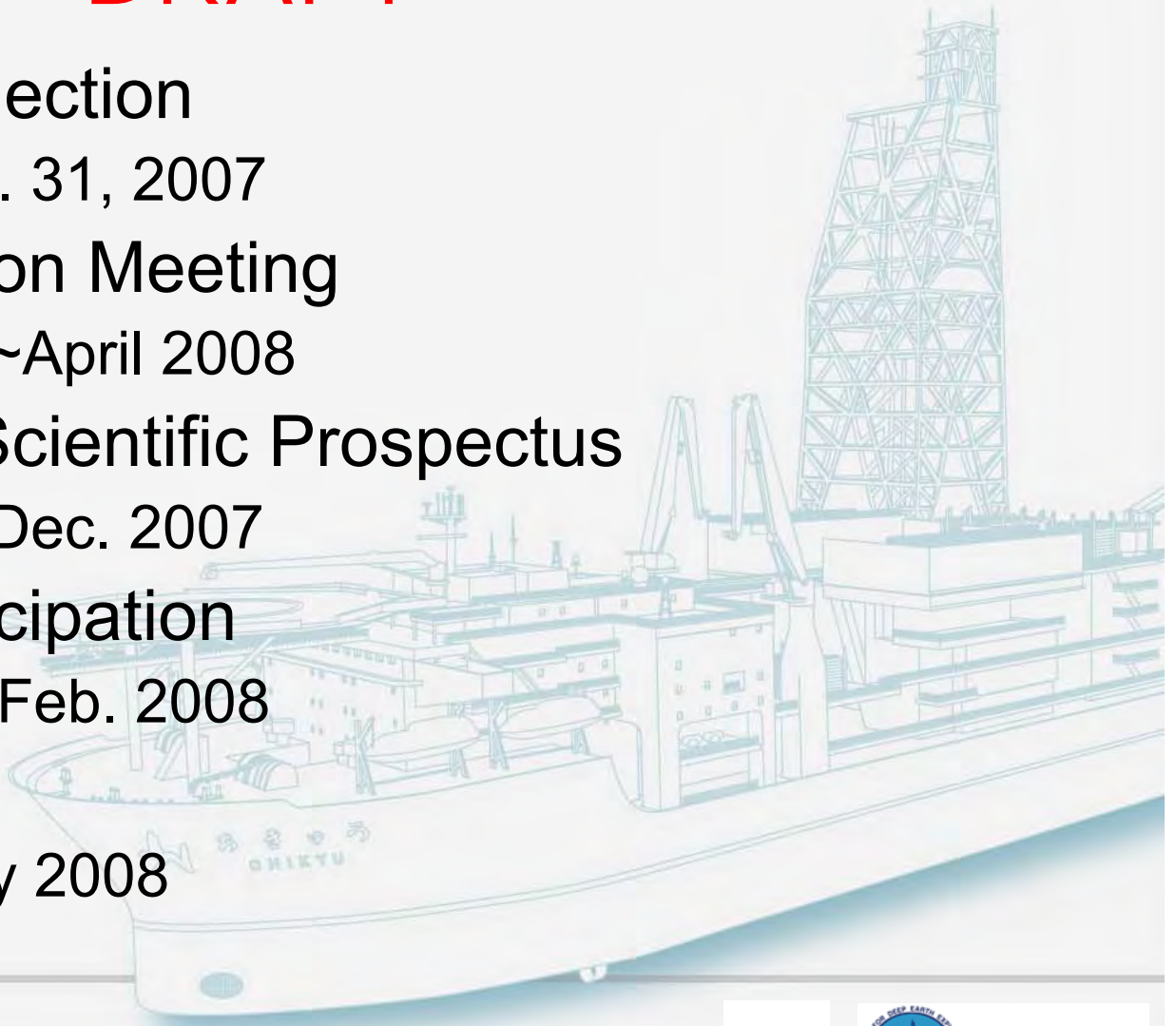
Call for Participation

- 1 Jan. - 29 Feb. 2008



Staffing

- Due by May 2008



Stage 2 Planning



Chikyu NanTroSEIZE Project Plan 2-2

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006 (H18)	SIT		(Doc & Insp.)			SIT	(Doc)	Shimokita	SIT			ODS
2007 (H19)				ODS				(Doc)		IODP NanTroSEIZE (Stage 1-RL)		
2008 (H20)			(Doc & Insp.)					non-IODP		IODP NanTroSEIZE (Stage 1-RL)		
2009 (H21)	IODP NanTroSEIZE (Stage 2-R1)			non-IODP				IODP NanTroSEIZE (Stage 2-R2)		IODP NanTroSEIZE (Stage 2-RL)		
2010 (H22)				non-IODP						IODP NanTroSEIZE (Stage 3)		



Staffing of Stage 2 Riser Expedition (original)

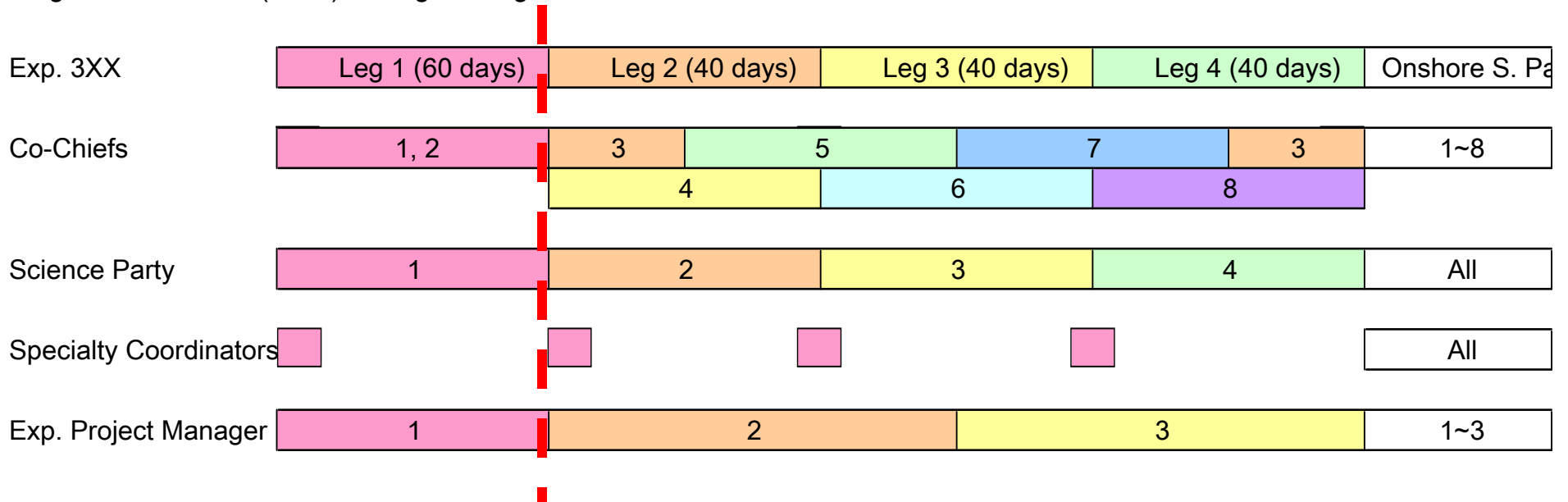
Exp. 3XX	Leg 1 (6 weeks)		Leg 2 (6 weeks)		Leg 3 (6 weeks)		Leg 4 (6 weeks)		Onshore S. Party
Chair of Co-Chiefs									
Co-Chiefs	1, 2		3, 4		5, 6		7, 8		1~8
or									
Co-Chiefs	1	3		5		7		1	1~8
	2		4		6		8		
Science Party	1		2		3		4		All
Specialty Coordinators									All
or									
Specialty Coordinators									All
Exp. Project Manager	1		2	3	4	5	6	7	1~8
Assistant EPM	8	2	3	4	5	6	7	8	
or									
Exp. Project Manager	1		2		3		4		1~4

Key Issues:

- 1) Expedition Responsibility : Leg Responsibility = Chair of Co-Chiefs : Co-Chiefs
- 2) Seamless (no-scientific gap & QA) Services between Legs

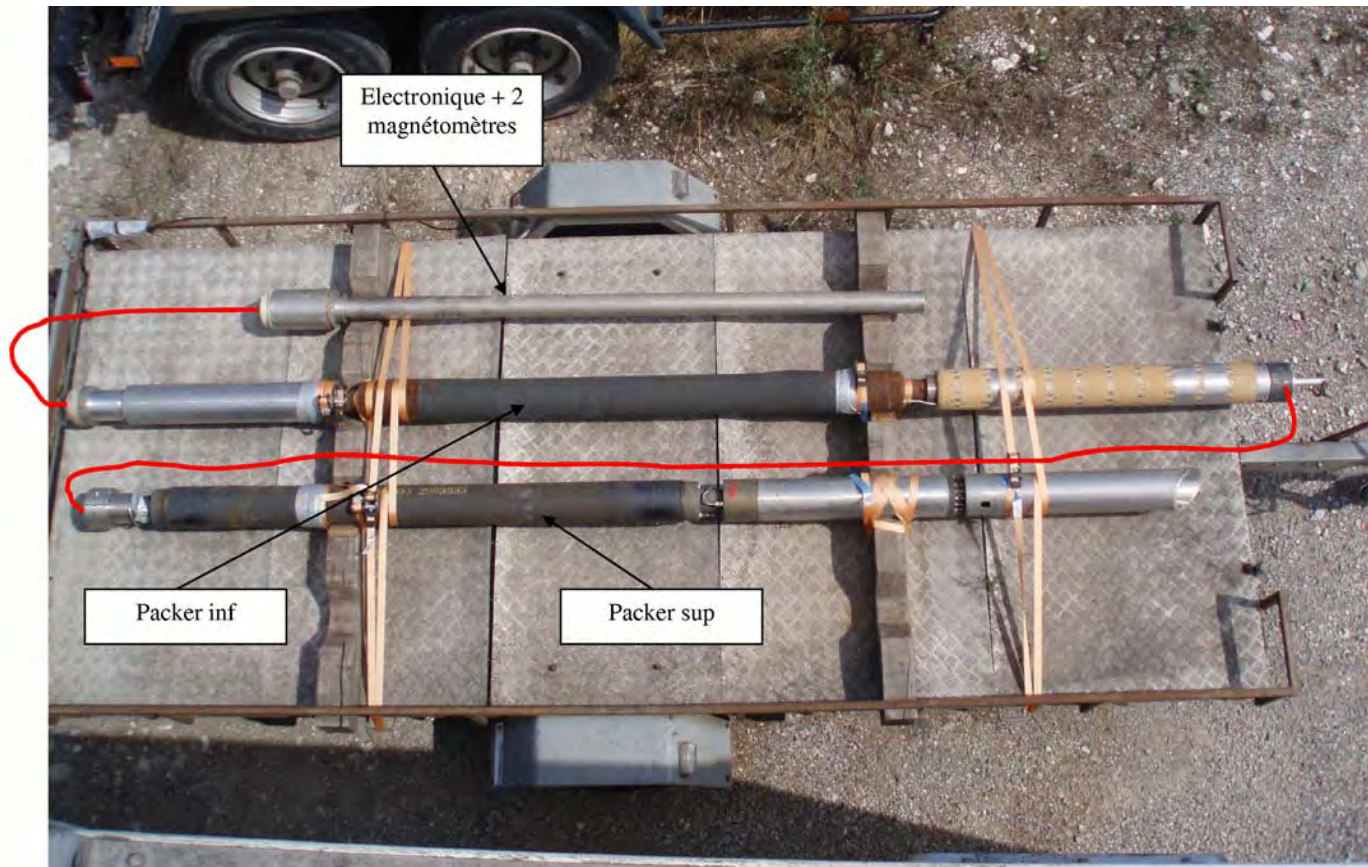
Staffing of Stage 2 Riser Expedition (DRAFT)

Stage 2 NT2-03 Site (Riser) Drilling Staffing Plan



HTPF





(Hydraulic Tests of Preexisting Fracture)



Main Requestors:

Mai Linh DOAN (University of Joseph Fourier, Grenoble, FRANCE)
Pierre HENRY, (Collège de France, Aix-En-Provence, FRANCE)
Siegfried LALLEMANT (University of Cergy-Pontoise, FRANCE)

Schedule of Stage 2 **DRAFT**

-  Prepare Overview Document
 - Due by 30 Sep., 2007
-  Call for Participation
 - 1 Jan. - 29 Feb. 2008
-  Pre-Expedition Meeting
 - May 2008
-  Staffing & Scientific Prospectus
 - Due by June 2008



Lab KAIZEN



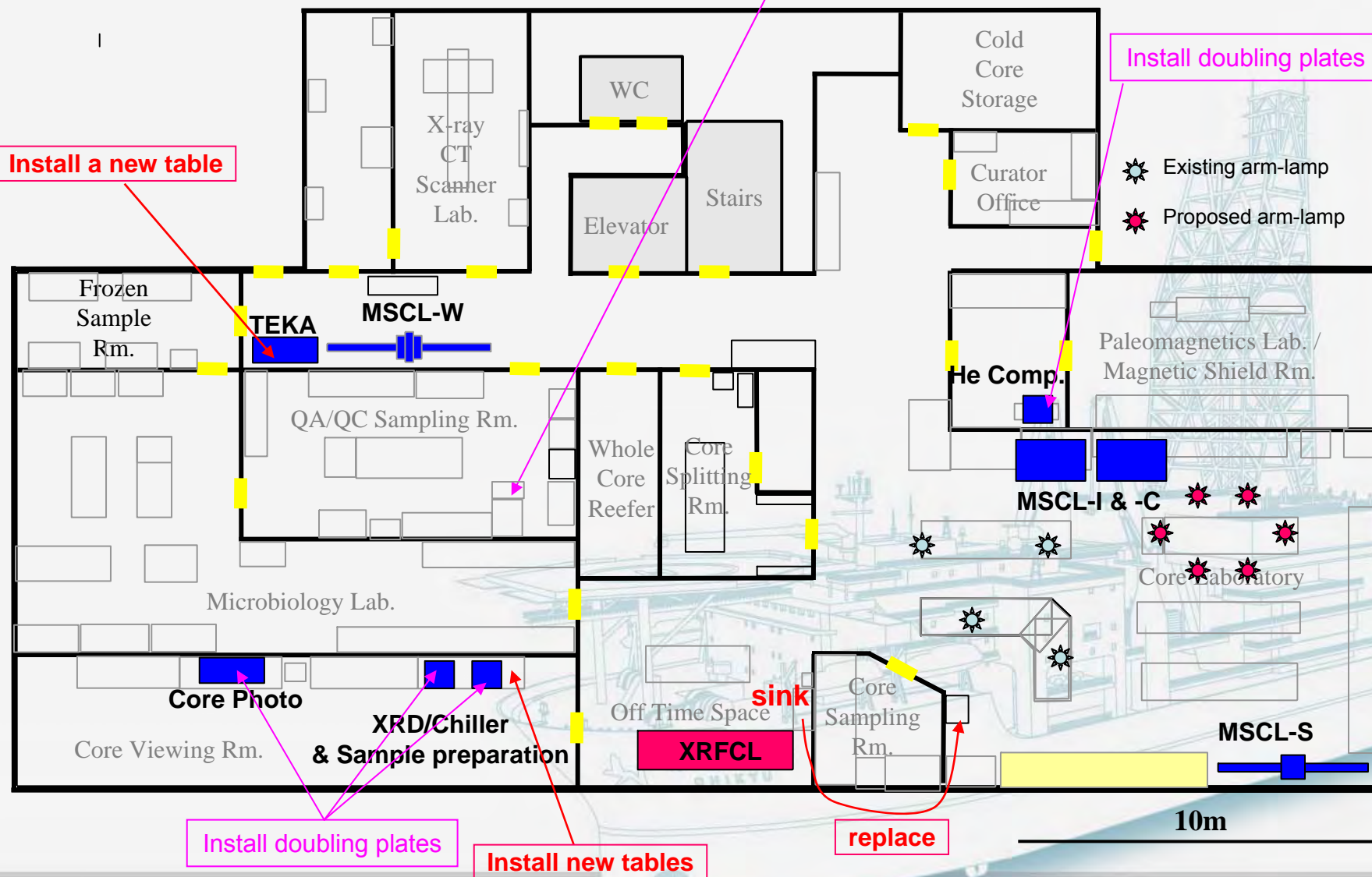
Core Processing Dk.

Install a new table

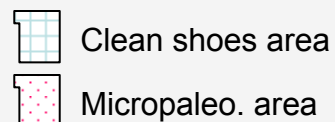
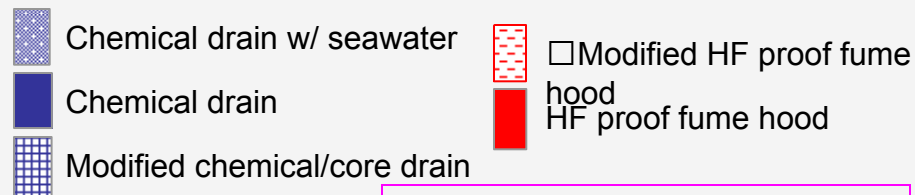
Connect to both core & chemical drains w/ valves & sediment trap

Install doubling plates

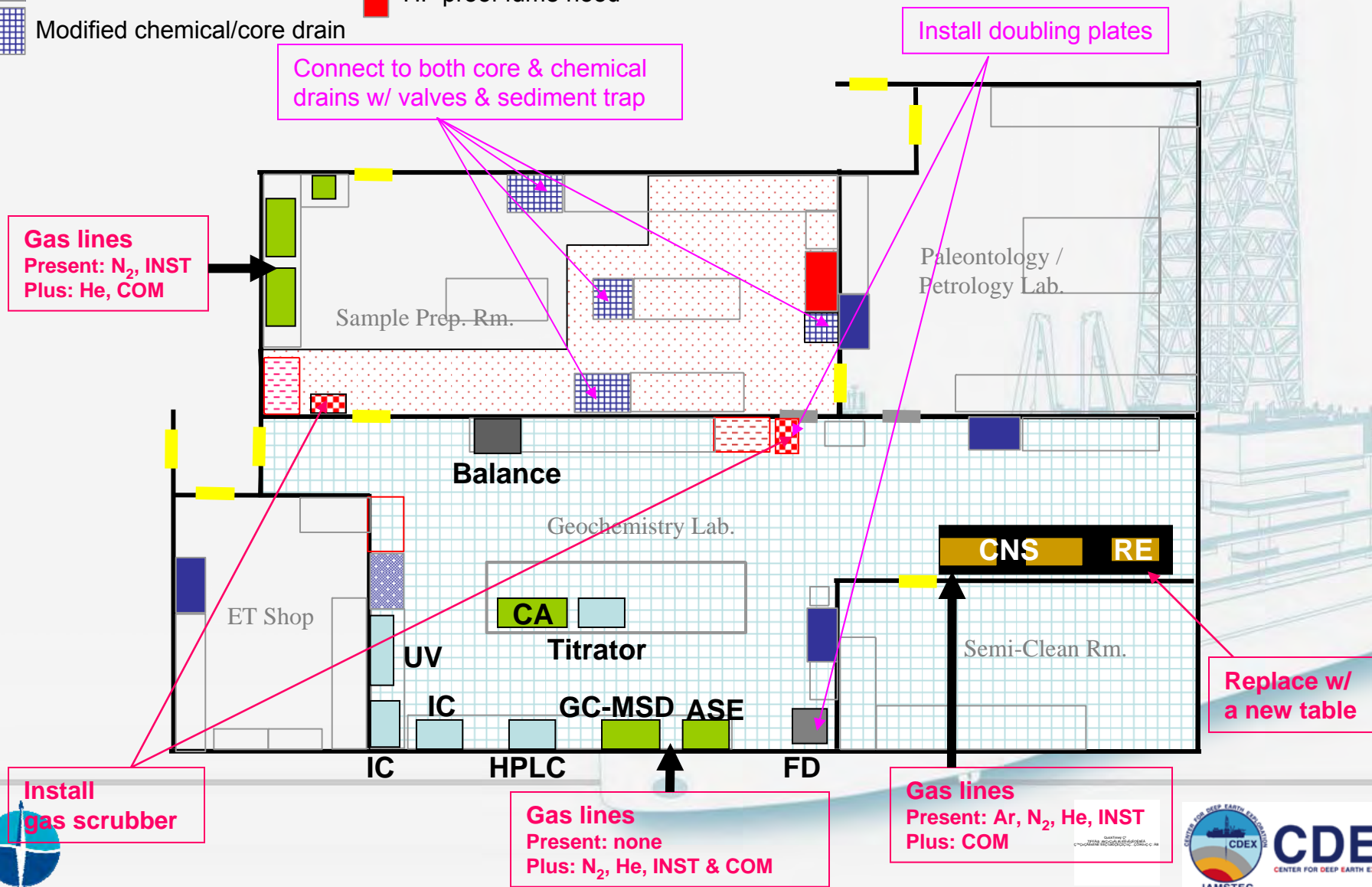
Existing arm-lamp
Proposed arm-lamp



Lab. Street Dk.



10m



Appendix C



Expedition 314- LWD Transect Status Report

NanTroSEIZE PMT
July, 2007

Expedition 314- LWD Transect

- Staffing (Finished on 7/4)
 - US (5), JPN (5), EU (5), Korea (1)
- Scientific Prospectus (on the Web on 7/11)
- Expedition Communication (online)
 - Science Party + 6 SCs+ CDEX NT Manager
 - 1st Welcome letter out (7/11), 2nd letter out (7/31)
- Sample/Data Request (7/1- 8/15)
- Data Processing/Analysis Trainings/ Documentations
- Boarding Schedule
 - 9/18 HSE
 - 9/19-21 Move to Shingu & Board Chikyu, Port activities
- Detailed LWD Planning (CDEX-SLB Meeting on 8/10)
 - Drilling-Operations Plan
 - Data acquisition (real-time and memory), data processing

Operation Plan and Time Estimate

- Leaving Shingu Port on 9/21
 - Pre-Spud/ Introductory Meetings @Port
- Pilot Holes Drilling (9/21-29)
 - Trainings/Seminars & meetings
- LWD Drilling (48.5 days with 24 contingency days)
 - Six sites (24.5 days drilling)
 - Typhoons (2+1 may take ~10 contingency days)
 - Sept.-Oct. Records: 3+2 Max., 2+1 Average
 - Casing for three 1000m+ holes (9 days for NT3-01)
 - NT3-01 1400m TD, 6+3 days for casing & drilling to TD
 - Down-Time for tools and other problems
 - 2 sets of LWD onboard all the time (one backup in SLB Japan Base)

CDEX Logging Service

- NT Stage 1 Chikyu Logging Plan
 - To use most NT-S1 logging budget for LWD tools
- LWD
 - annular pressure & MWD (60 days)
 - density/porosity, resistivity, sonic (28 operation/ 53 rental days)
 - VSP (22 operation/ 44 rental days)
- Wireline Logging as Backup
 - 1 primary run (sFMS & sonic Velocity)
- Data Processing
 - Data Q/C (LSS & DCS)
 - Basic, image & VSP logs (LSS & Sci. Party)
 - Sonic Velocity (CLSI & Sci. Party)

Science Party- Working Groups

CDEX Group (LSS, WSG, CLSI)

Operational monitoring (WSG-DE), data Q/C (LSS/WSG-DCS), data processing (LSS-DCS), data distribute and report (LSS-EPM)

Lithostratigraphy (density/porosity, GR, resistivity, sonic)

Log units identification, lithological interpretation & sedimentary facies characterization

Physical Properties & Hydrogeology

Interpretation of PP related logging data, estimation of porosity & compaction/consolidation state, and hydrogeological properties

Structure (Resistivity)

Falut Zone identification and characterization, detailed fracture analysis, borehole stability, and stress and strain analysis

Log-Seismic Integration (sonic- & seismicVISION)

Intensive processing of sonic and seismic while drilling data, as well as seismic modeling (synthetic seismogram), to improve time-depth relationships and reflector character and attributes

Hardware-Software for the Science Party

Special HW-SW for the LWD (Logging)

- Linux-Windows Workstations (Dual Monitor)
- GeoFrame (logging data processing)
- Paradigm (seismic data processing, log analysis)
- GeoMechanics (GMI.imager)

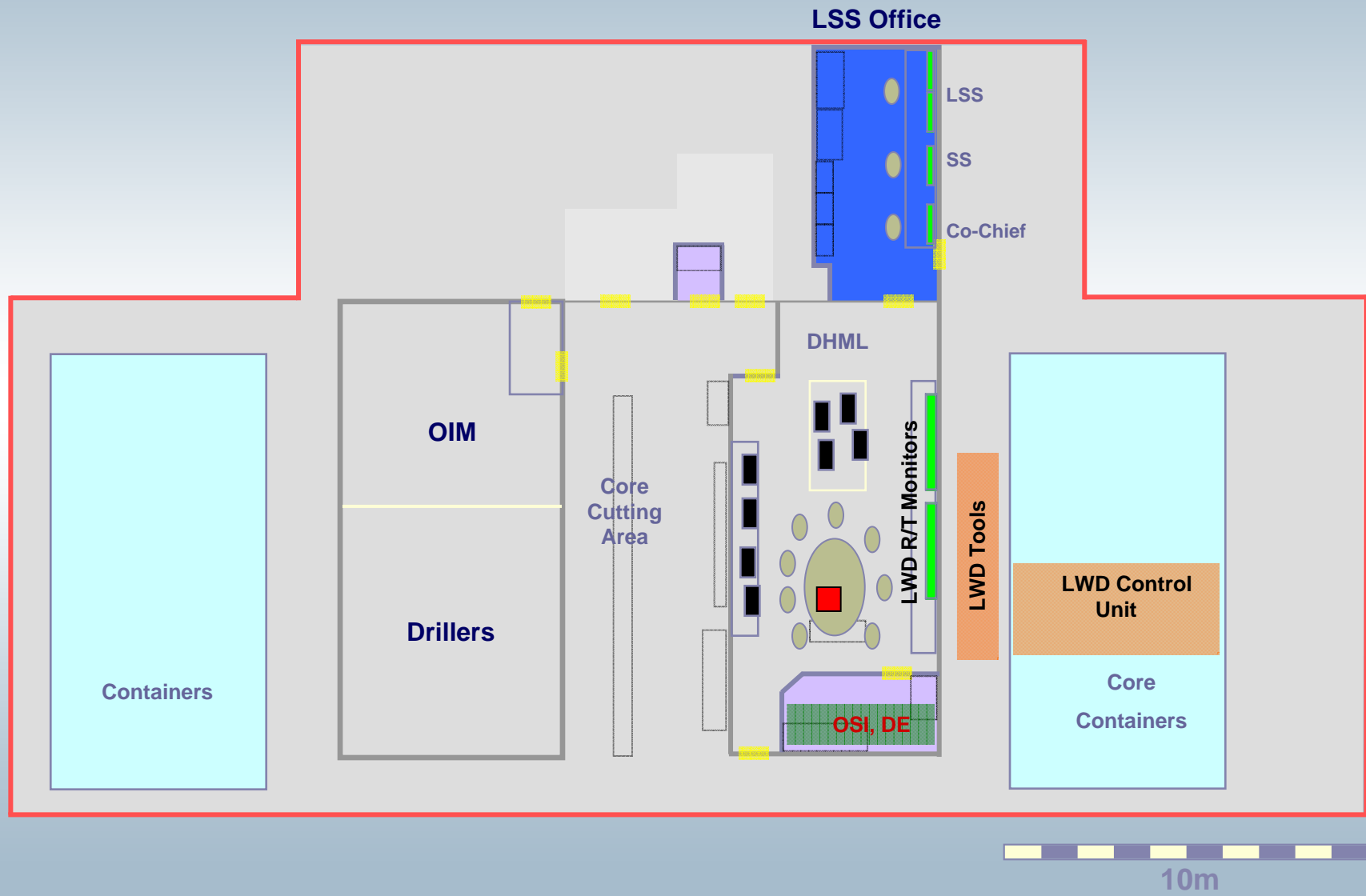
Other HW-SW for the Science Party

- Basic general & science use softwares
- 9+ 4 desktop PCs for science party use
- 4+4 note books for EPM, CCs

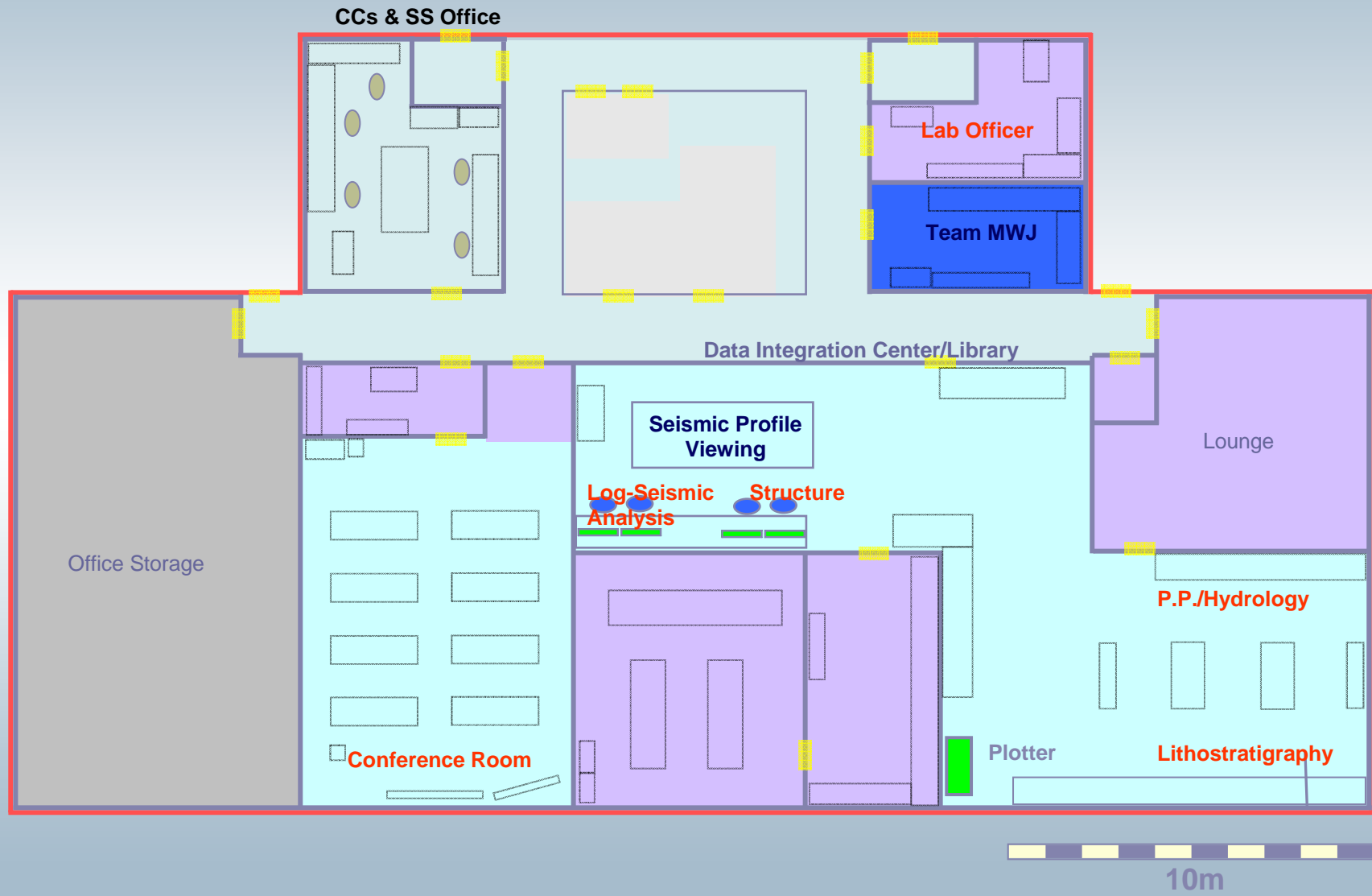
Internet Access (512 Kbps V-SAT)

- Mail, Internet, Data Transfer, IP Phone, Video Conference

Lab. Roof Deck



Lab. Management Deck

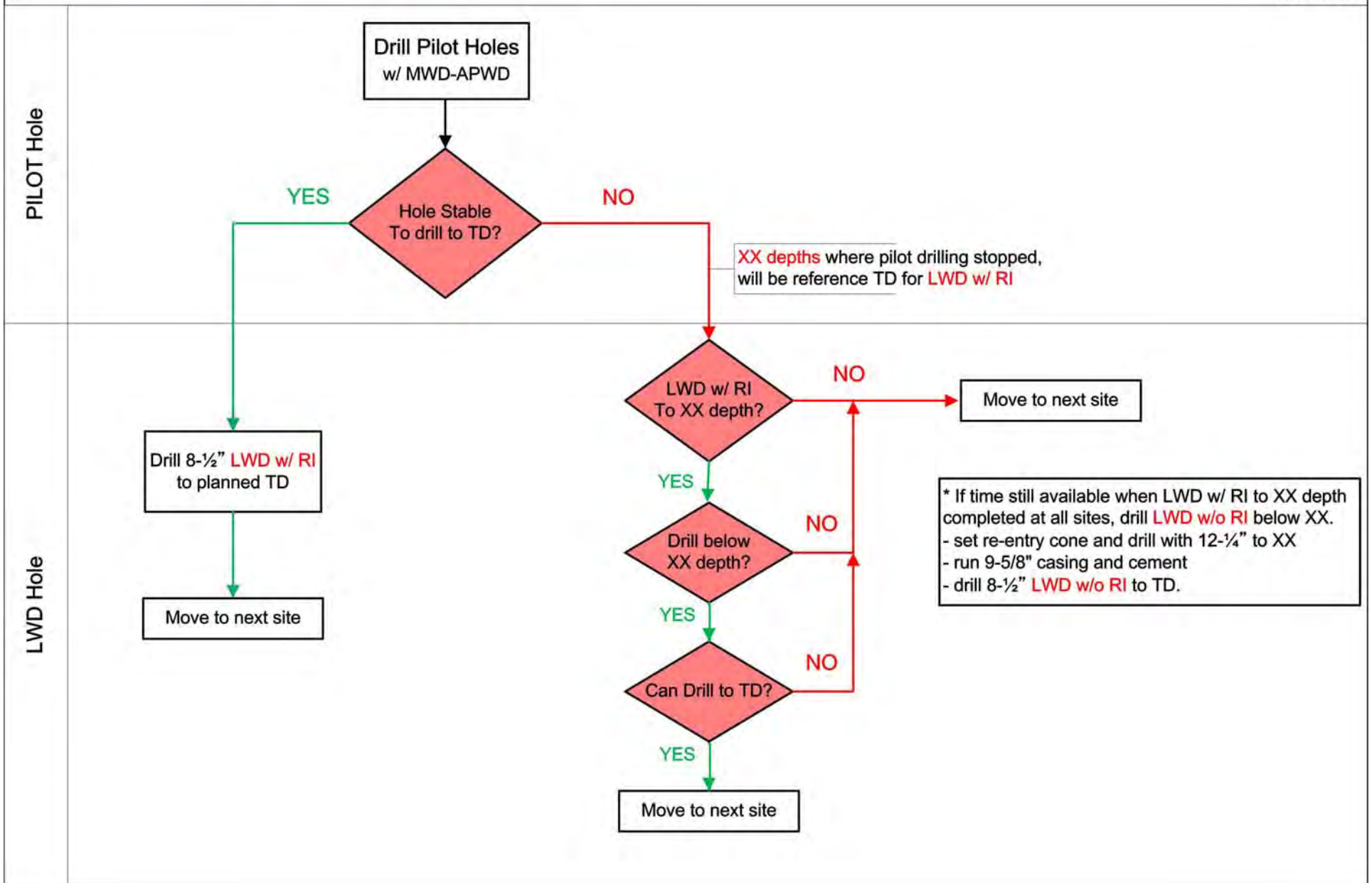


Contingency Coring Plan

- Riser Hole GeoTechnical Coring (Pilot Hole Drilling)
 - Core 70m sediment at NT2-03 site
 - Drill and core 70m with HPCS (1.5 days)
- RCB Coring System Test (LWD Drilling)
 - To test the Rotary Coring Barrel (RCB) test at NT3-01 site
 - Drill 600m by RCB, core 50m (3.5 days)

CDEX Expedition 314 Decision Flow

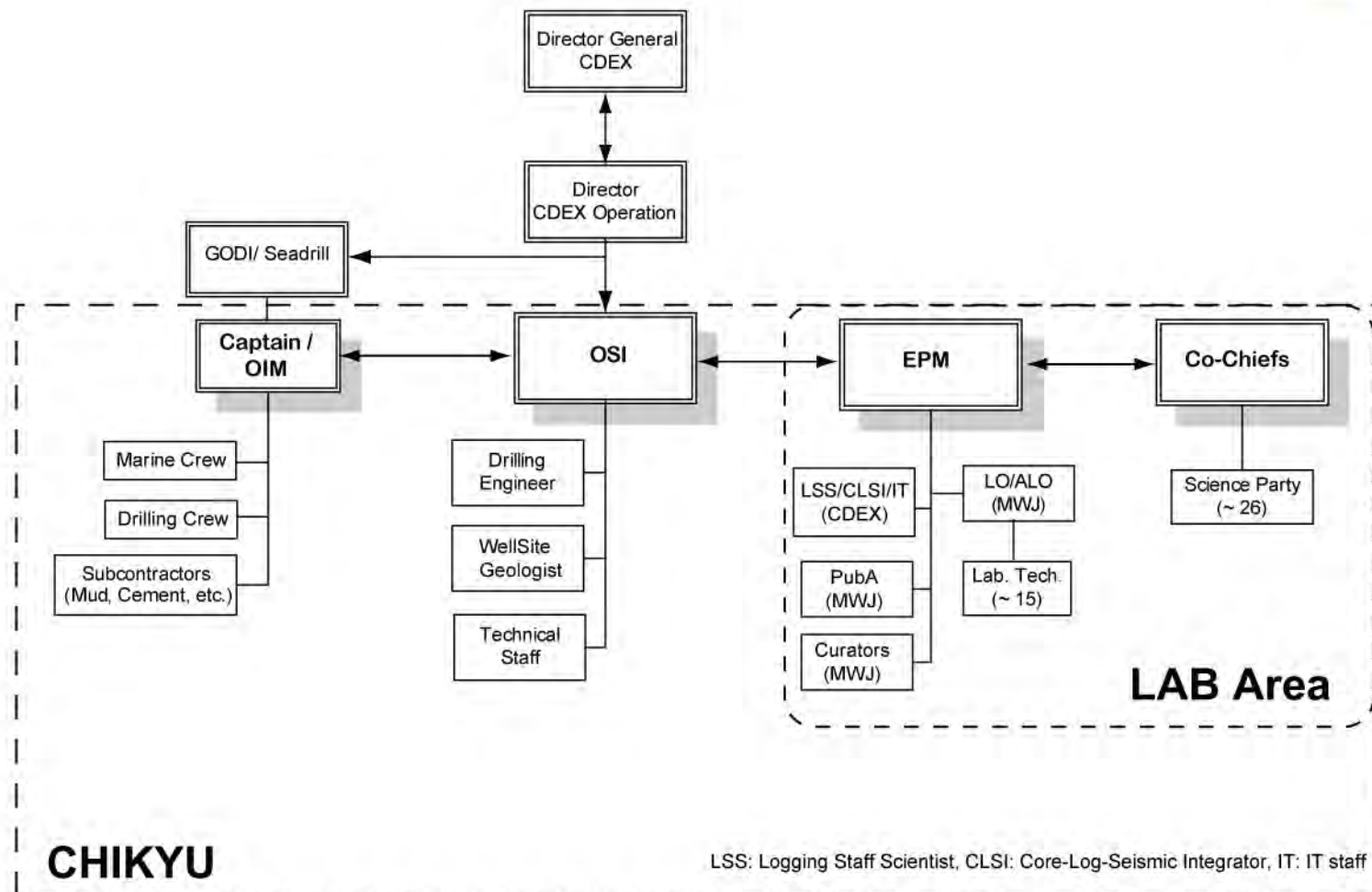
June 15, 2007



CHIKYU's Chain of Command

CHIKYU Onboard Structure

NanTroSEIZE Stage 1



314 Grouping & Softwares

Team CDEX (LSS/EPM, CLSIs)

- Philippe/Moe, Sanada/Kido
- GeoFrame (1)+ GeoLog (1)

Lithostratigraphy

- Sanny, Joanne Tudge, Maria Jurado, Kylara Martin (?),
- GF (WellEdit, WellCompositePlus) & GeoLog (Facimage)

Physical Properties & Hydrogeology

- Sylvain, Chang, Marianne Conin, Miyakawa (?)
- GeoLog (Basic)??

Structural analysis

- Casey, Lisa, Yamada,
- GF (BorView-DIP), GeoLog (Geomage) and GMI.imager

Log-Seismic Integration

- Greg, Nakamura, Sean Gulick, Dale Sawyer
- SeisEarth (1), ExplorerMV, FOCUS, Sonic Waveform

Post-Cruise

Operations Review Task Force (ORTF) (~ 4 months)

- Co-Chiefs' report (Lessons-learned- items and recommendations)
- IO report (Scientific achievements, operation review, discussion items and recommendations)
- **NT Stage 1 Expeditions Review Meeting in Japan (April-June, 2008)**
 - IODP P-VPs, CCs, EPMs, LSSs, IO representatives & CDEX responsible personnel, Science Community and Industry representatives

1st Post-Cruise/Editorial Meeting (3~ 5 months)

- To finish Expedition Report (IODP Preceedings) (EPM-LSS-CCs-Key scientists & CDEX Editor-In-Chief)
- **Exp. 314: In Japan or In TAMU (Feb-Mar, 2007)**
 - Meeting with 317 Science Party @Shingu on 2/6 (2/6-9, 2008)
 - Editors (USIO Publications) will be invited

2nd Post-Cruise Meeting (~ 24 months)

- To discuss research results, confirm for Research Results publication
- **NanTroSEIZE Science Symposium (March-May, 2009)**

Exp 314 Summary

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

LWD Plan

- GeoVISION
 - Azimuthal Resistivity and NGR
- SonicVISION
 - Sonic velocity
- MWD
 - APWD, directional sensing
- SeismicVISION
 - VSP/checkshot receiver
- ADNVISION
 - Density, neutron porosity, ultrasonic caliper

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

314 Contingency

- 15 contingency days built-in to schedule
- If all primary sites are completed, or if one or more cannot be drilled, operations at two contingency sites are planned:
 - (1) NT2-04
 - (2) Deepen at NT1-03
- If behind schedule, shallower penetration at NT2-03, NT3-01, and other sites
- *Coring?*

Exp 314

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

Appendix D

Expedition 315

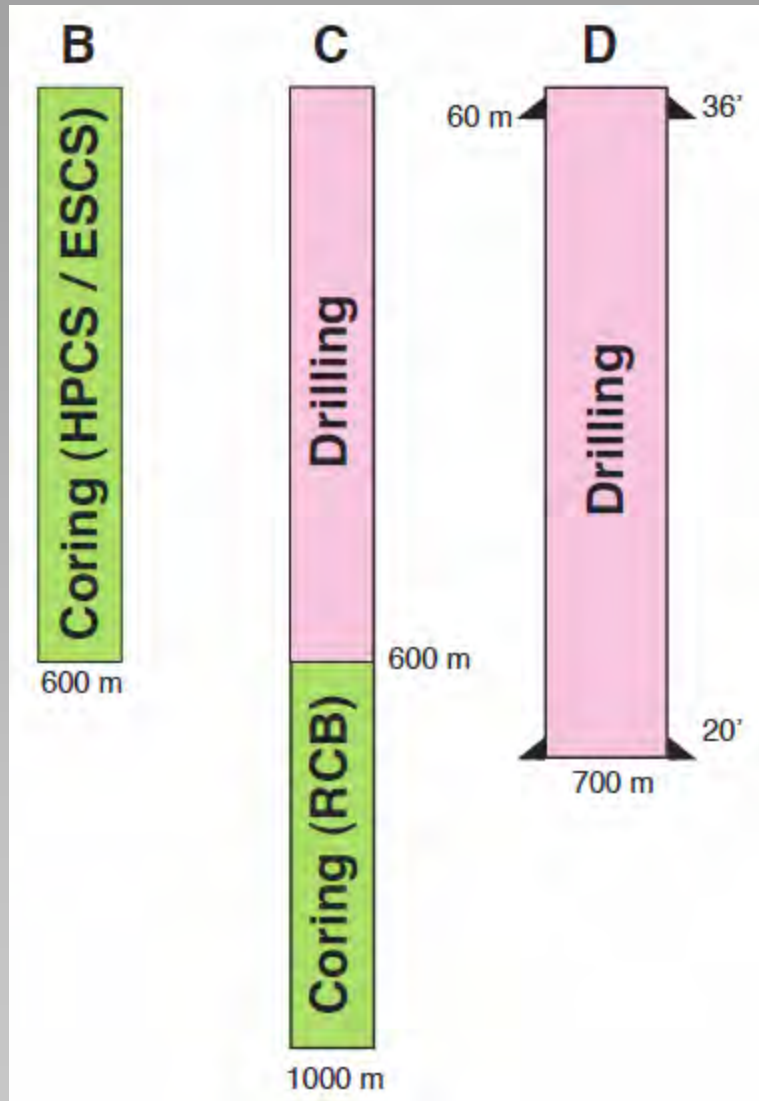
—Megasplay Riser Pilot—

16 Nov–19 Dec, 2007

- Staffing (still 1 PP [EU] not fixed)
 - US (8), JPN (8), EU (9)
 - Boarding schedule arrangement: *in progress*
- Scientific Prospectus
 - *In final editing, will be on the web soon*
- Sample & data request started (online)
 - *~15 Aug.*
- Start discussion about science plan
 - *Communication through Basecamp*
 - *Routine mes., core flow, non-standard/3rd party tool*



Operation Schedule



- HPCS/ESCS coring to 600 m (Hole B): 7.5 days

- RCB drilling& coring to 1000 m (Hole C): 7.5 days

- Drilling & casing for future riser hole (Hole D): 8 days

- Contingency: 10 days

Total 33 days



Exp. 315 (Megasplay Riser Pilot)

Science party #	Speciality 1	Japan	US	ECORD	China	Korea
1	Co-Chief Scientist	J. Ashi				
2	Co-Chief Scientist			S. Lallemand		
	Expedition Project Manager	H. Masago				
	Logging Staff Scientist					
3	<u>Sedimentologist</u>		TBD			
4	Sedimentologist		J. Guo*			
5	Sedimentologist	Y. Hashimoto				
6	Sedimentologist			G. Calves* (UK)		
7	Structural Geol.		T. Byrne			
8	Structural Geol.	K. Kanagawa				
9	Structural Geol.		J. Lewis			
10	Structural Geol.			V. Famin (F)		
11	Structural Geol.			J. Behrmann (G)		
12	PP	T. Hirono				
13	PP		W. L. Zhu			
14	PP		B. Likos			
15	PP			P. Henry (F)		
16	PP/Heat Flow			F. Schmidt-Schierhorn* (G)		
17	P-Mag	T. Kanamatsu				
18	P-Mag		J. Pares			
19	Micro-Pal	H. Hayashi				
20	Micro-Pal			B. Boeckel (G)		
21	Inorg. Geochem.	H. Tomaru				
22	Inorg. Geochem.		S. Hulme*			
23	Org. Geochem.	H. Saito				
24	<u>CLSI/PP</u>			TBD		
25	Microbio			A. Kaksonen (Finland)		
		8	8	9	0	0

Mike Underwood

A. Kopf (G)

Pierre Henry

*Graduate Student

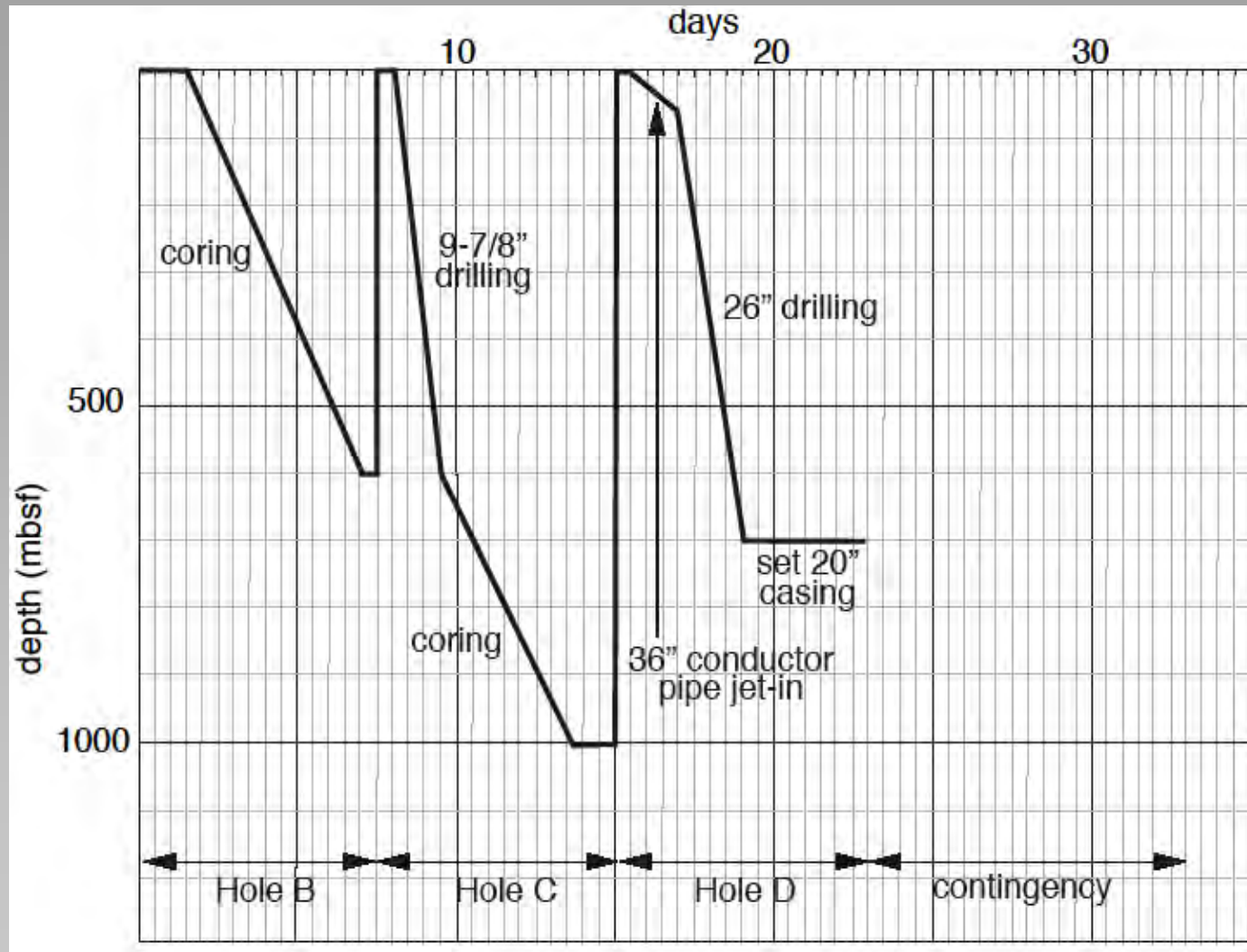
Boarding Schedule

- CC : **Ashi, Lallemant**
- EPM : **Masago**
- Sedimentology : **Underwood**, Calves, Guo, Hashimoto
- Structural : **Byrne**, Behrman, Famin, Kanagawa, Lewis
- PP : **Hirono**, Kopf, Likos, Zhu
- PP/Heat flow : **Schmidt-Schierhorn**
- CLSI/PP : **Henry**
- Paleomag : **Kanamatsu**, Pares
- Micropaleonto : **Boekel**, Hayashi
- Inorganic Geoch : **Tomaru**, Hulme
- Organic Geoch : **Saito**
- Microbio **Kaksonen**

- **Red (key persons)** : arrive Nov 11 and leave Dec 19
- **Blue** : arrive Nov 16 and leave Dec 19
- **Black** : arrive Nov 16 and leave Dec 13



Contingency

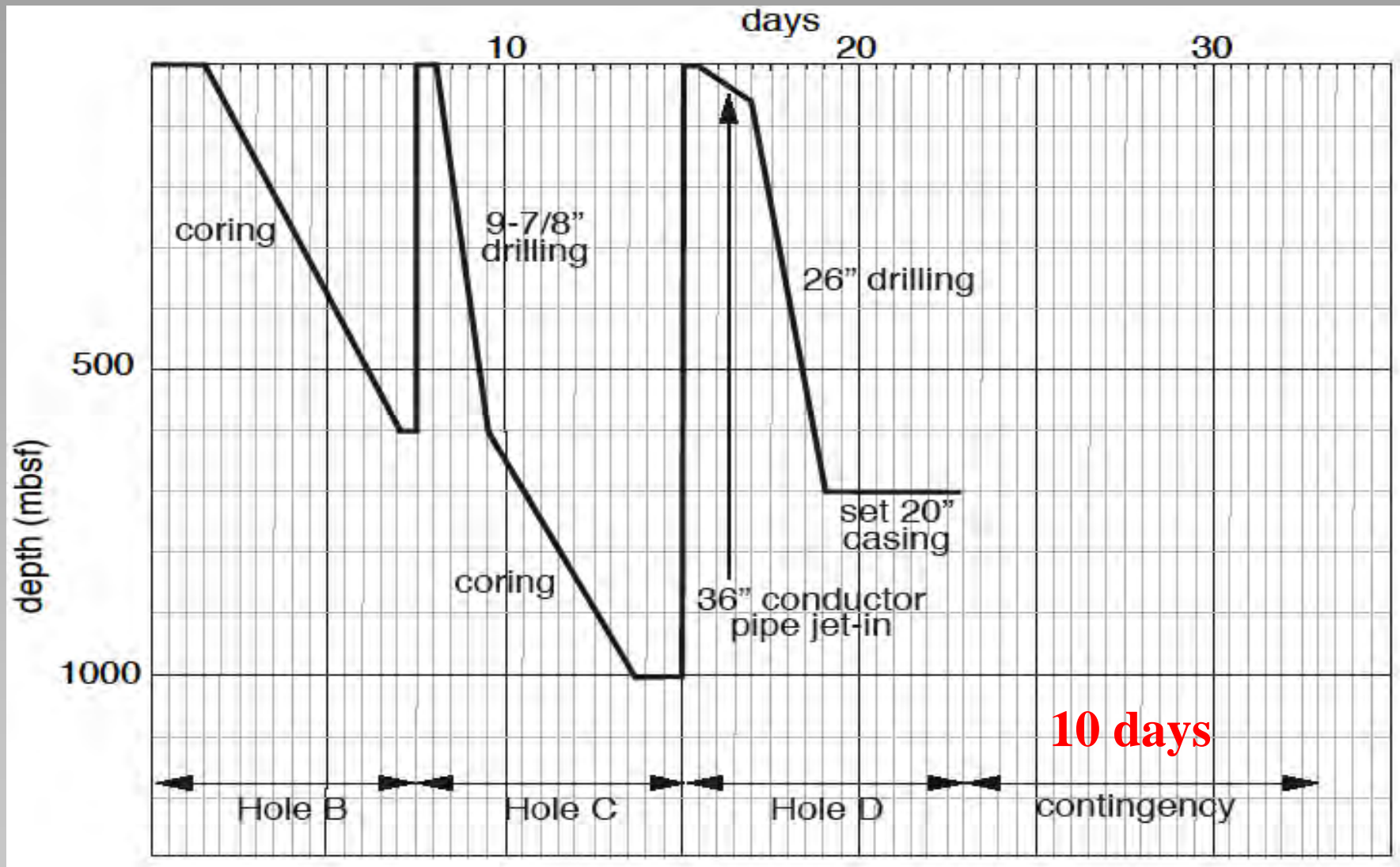


Internal
NT2-03C

Global
NT3-01
NT1-01
NT1-07
NT2-05
NT2-10
NT2-04



Exp 315 Contingency

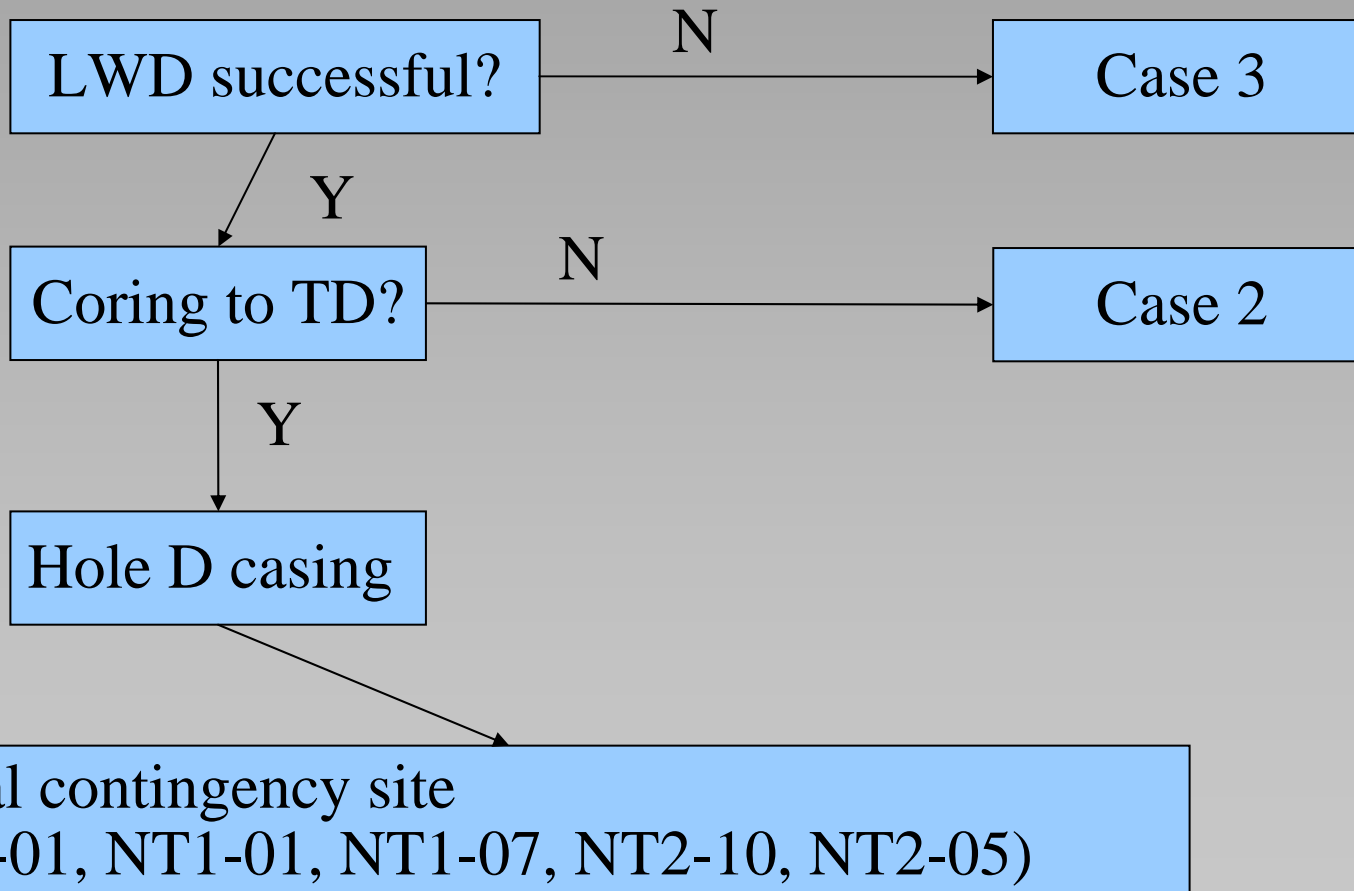


Hole D casing needs 8 days of contingency



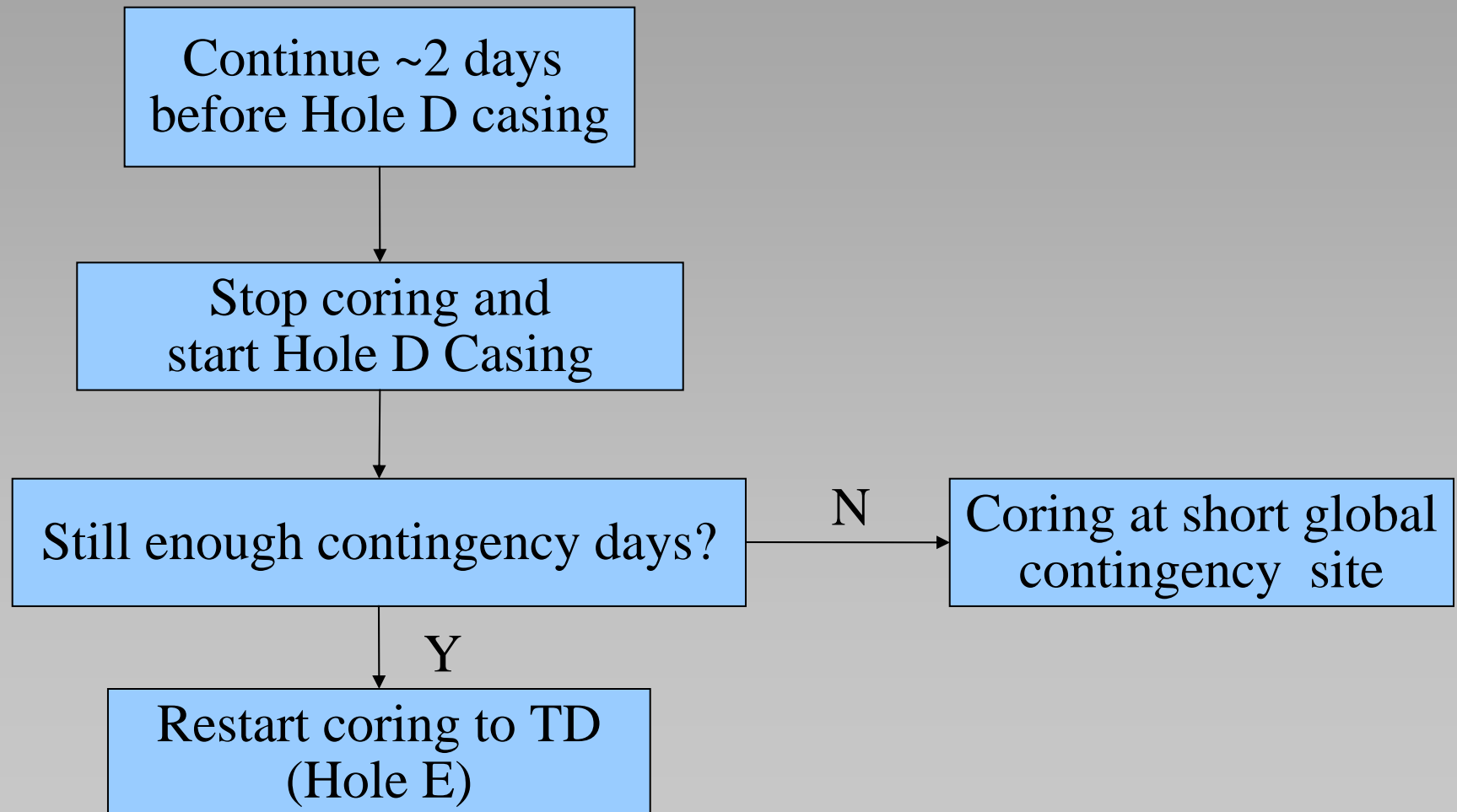
Case 1

Everything goes well



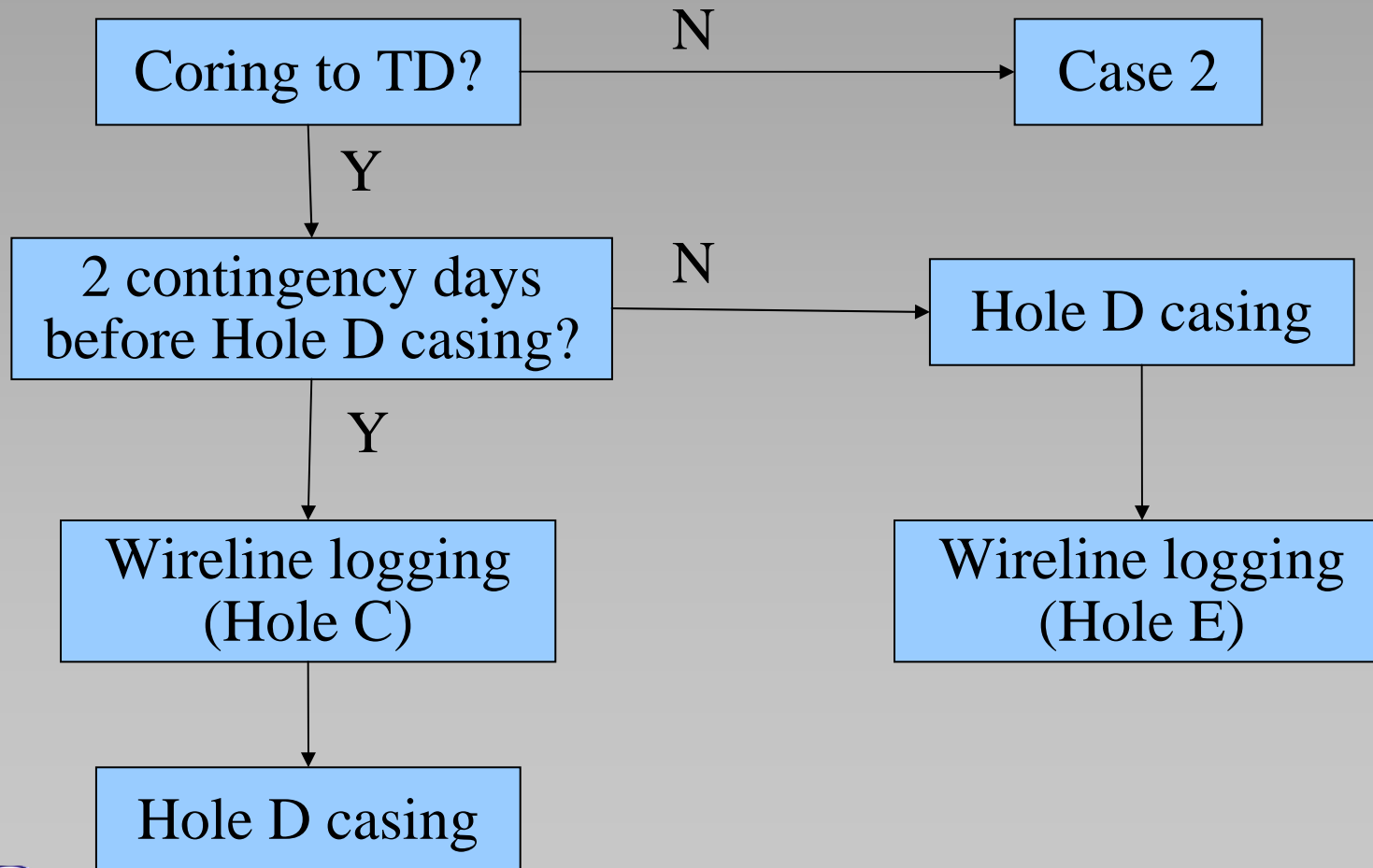
Case 2

Coring cannot reach TD



Case 3

LWD unsuccessful due to mechanical, weather...etc



Case 4

Strong Kuroshio current

Coring and logging
at NT2-04



Priority

1. Casing of Hole D
2. Coring to TD
3. Wireline logging (in case of unsuccessful LWD)
4. Coring at global contingency site
 1. NT3-01
 2. NT1-01
 3. NT1-07
 4. NT2-10
 5. NT2-05
 6. NT2-04



Appendix E

Notes on 10th PMT

Masa Kinoshita

Gaku Kimura, Wonn Soh, Juichiro Ashi,
Shinichi Kuramoto, Greg Moore

Definition of Stage 1

- Stage 1 should still include all planned sites (NT1-1/1-7/1-3/2-1/2-3/3-1 riserless).
- The first part of stage1 (Stage1A) includes 3 Chikyu expeditions.
- The extended stage 1 (Stage1B), which potentially includes NT1-1/1-7/3-1/CORK, may be carried out in Oct-Dec 2008 in Chikyu or in JR.
- Science party (moratorium access) is defined for each part of Stage1 separately.

Sample/Data Distribution Policy (proposal)

- 1) Anyone can submit a request. However, we will not place an open call for the sample/data request. Instead, PMT will send out a reminder mail to Exp. 317/318 former invitees to announce the deadline. (Treatment in Stage1B will be discussed similarly.)
- S/D request can be submitted after the Aug. 15 deadline, even during the expedition.
- Issue 1-page letter to announce and encourage submission of S/D request.
- 2) SAC officially approve sample/data request, and define who are involved as shore-based scientists.
- Role of SCs: To give advice to SACs (SCs are NOT the member of SAC).
 - Coordination among expeditions will be taken care of by SCs, if, for example, SAC decision for each expedition does not agree with each other (we decided not to form super-SAC).
 - All necessary discipline should be covered.

Scientific Priorities for Stage1B

- 1) Installation of CORK-II at NT3-1
- 2) All other business (Kumano Basin / Input sites)
- 3) Other CORKS (603D)

Importance of CORK

- A) CORK here is important for monitoring low-frequency event activity, which can help define how the updip accretionary wedge deforms during the inter-seismic period.
- B) This CORK is also important to technically prepare for the coming riser-based observatory. Especially, measurements of pore pressure AND strain (Sacks type) can make a big milestone.

Slides from previous PMT#9

NanTroSEIZE Specialty Coordinators

Responsible for

- (1) Technical and scientific guidance to all science parties**
- (2) Facilitating coordination and collaboration among science parties across all Stage 1 expeditions**

Lithostratigraphy/Sedimentology

Underwood

Structural Geology

Kimura

Geotechnical Properties and hydrogeology

Saffer

Geochemistry

Wheat

Core-log-seismic integration

Moore

Paleomagnetism/Biostratigraphy

Kanamatsu

Stage 1 Sample Allocation Committee's

Five NanTroSEIZE Stage 1 Expeditions as Single Science Program



Expedition 314
LWD Transect

SAC
Tobin, Kinoshita,
Moe, Curator

Expedition 315
**Megasplay
Riser Pilot**

SAC
Ashi, Lallemant,
Masago, Curator

Expedition 316
Thrust Faults

SAC
Kimura, Screatton,
Curewitz, Curator

Expedition 317
**Subduction
Inputs and
Kumano Basin**

SAC
Underwood, Kopf,
Saffer, Soh, Klaus,
Curator

Project Chief Scientists, Specialty Coordinators


Consensus on PMT#9

- Majority sampling be made onboard, except for some special intervals that are agreed onboard not to sample onsite. This rule be included in the call for sample request form and in the working sample plan.
- Stage1 post-cruise sampling be made by scientists who are interested only (not all), after Exp#317 but before stage2.

Guiding Principles for Community Samples and Sample Clusters (referred to by expedition-SACs) – SC's task!

- Data supply for Stage2 in timely manner
 - Define stage1-essential data types (Goal) (geotech, inorg geochem, sed, age-depth, DM & logging, etc.)
 - careful not to conflict with moratorium
 - Check for conflict with request from science members
 - Funding model (request to STP/encourage science party to get their own fund?)
- Cross-expedition systematic sampling
- Sampling policy from “critical intervals”
 - Time-critical sampling (pore fluid, nanno, etc.)
 - Intact-critical sampling (structural)
- Encourage science community (Solicitation)
 - For submission SRF to meet the goal of NanTroSEIZE
 - For shorebased, post-cruise sampling

Pre-expedition Research Planning sample and data requests

Activity	Who	When
Assemble welcome and information email to Stage 1 Science Party	Harold,,/Masa (lead), Stage 1 Co-chiefs, Specialty Coordinators, Staff Scientists	1-31 May
Send email to Stage 1 Science Party		31 May
Formulate Research Plans; Discuss collaborations	Science Party members and specialitycoordinators	June-July
Research Plan Submission (sample and data request)	Science Party Members and any shore-based requestors	31 July
Review, organize research plans, identify cross-expedition issues	Expedition SACs (CC, SS, Curator) Specialty Coordinators	August 
Address cross-expedition issues, Discuss required modifications with science party	Expedition SACs (CC, SS, Curator) Specialty Coordinators	
As required, scientists modify research plan (Sample and Data Request)	Science Party Members	
Re-review research plans, ensure cross-expedition issues resolved	Expedition SACs (CC, SS, Curator) Specialty Coordinators	
Approve Research Plans (Sample and Data Requests)	Expedition SACs (CC, SS, Curator)	
Stage 1 Working Research Plan		
First Stage 1 Expedition (LWD) begins		21 Sep 07

Observatory Updates (July-07)

- **Overall Observatory Plan – Priority and Framework -**
 - Multiple shallow holes
 - NT3-1CORK
 - CORKS proposed in 603D
 - Jet-in CORK / Sediment CORK (Addendum or Eng. Dev. Prop.)
 - Deep riser holes
 - NT2-3 Mega splay (3500m, 100C, >5 years)
 - NT3-1 Mega thrust (6000m, 170C, > 5 years)
 - NT2-3 retrievable station needs reconsidered (“learn step-by-step” vs. “once set you should keep it”, etc.)
- **Reorganization**
 - JAMSTEC Observatory Framework being reorganized
 - Obs. Mtg planned in Oct-07 to redefine a practical roadmap that meets NanTroSEIZE science objectives – needed to get funding approval
 - International framework to promote observatory required
- PMT submit recommendations for NanTroSEIZE Observatory

NanTroSEIZE Borehole Observatory Plan - Update 07

-

M. Kinoshita, E. Araki (IFREE)

N. Kyo, H. Ito (CDEX)

E. Davis (PGC), D. Saffer (PSU)

K. Suyehiro (JAMSTEC)



Goal of NanTroSEIZE

Understanding mechanism of $M > 8$ earthquakes through coring, downhole measurement and monitoring at the seismogenic fault.

Goal of NanTroSEIZE Observatory

To monitor slips and deformations at the locked portion of the $M8$ seismogenic plate boundary

- *Drilling operation starts this September for Stage 1
- *Observatory systems are now under development.

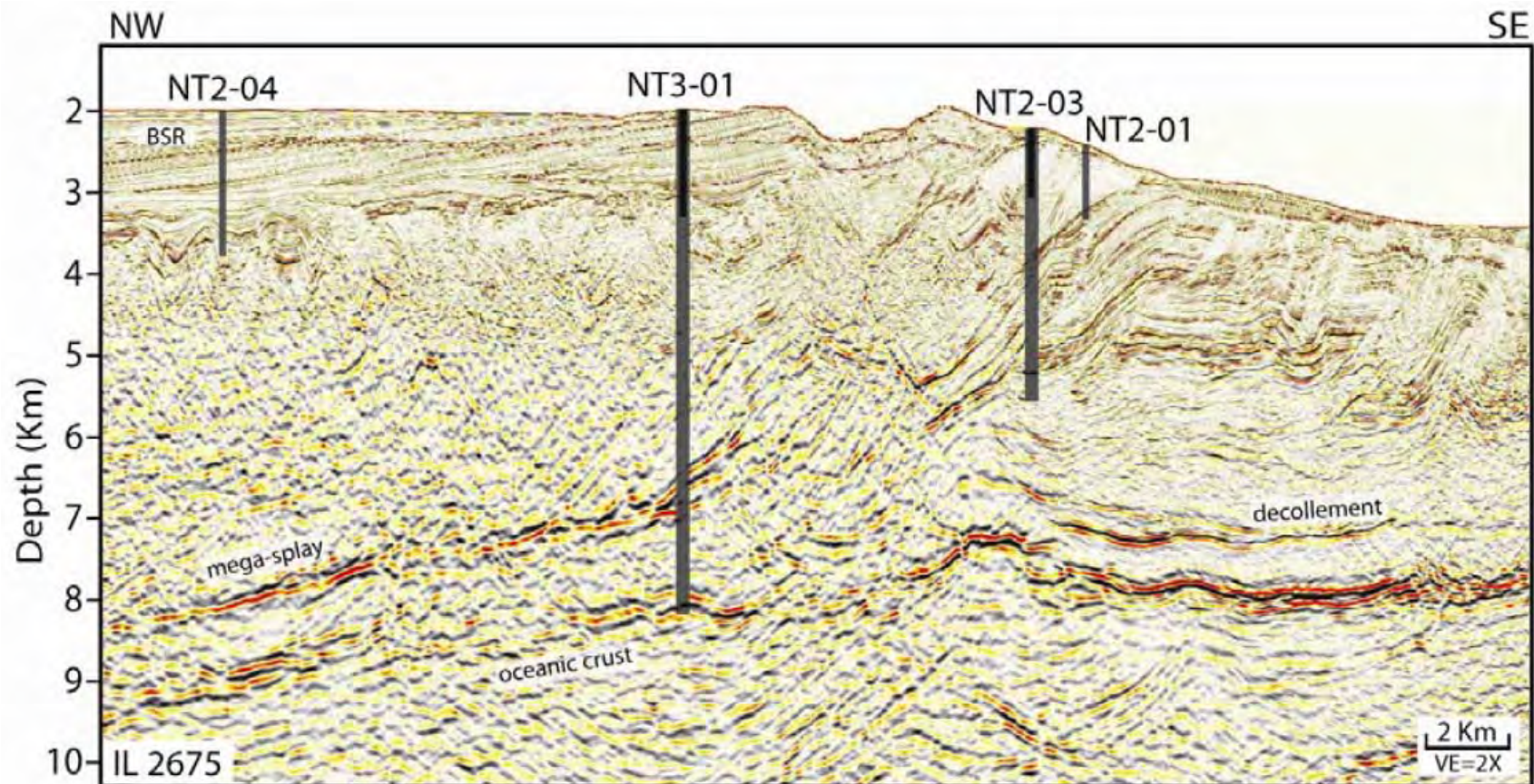
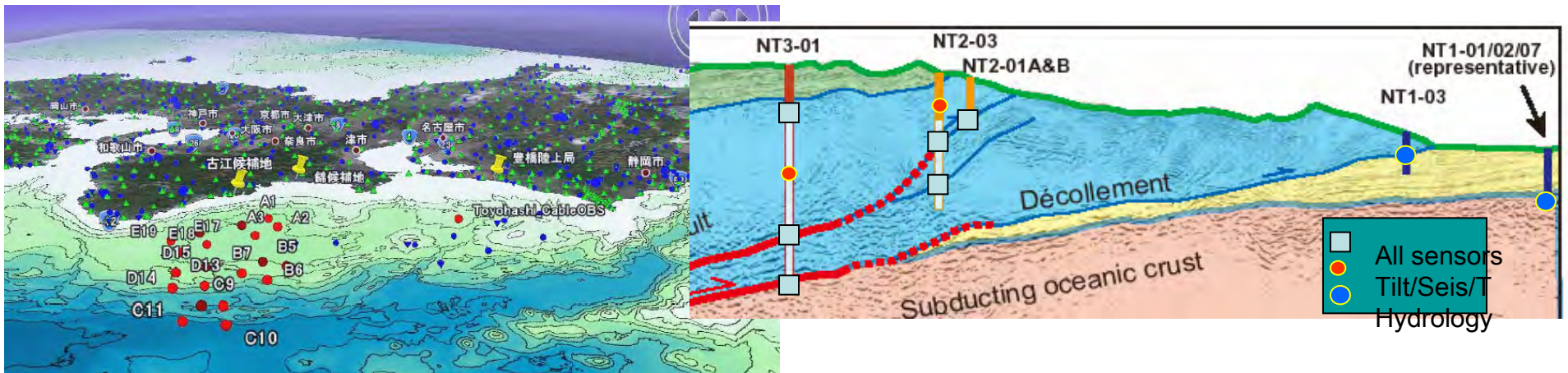


Fig. 5. CDEX 3D seismic InLine 2675 with locations of main NanTroSEIZE drill sites projected along strike. Preliminary depth converted section. Location shown in Figure 4. Note that well depths shown are potential total depths of penetration during Stages 2 and 3. Stage 1 depths ~1000-1350m.

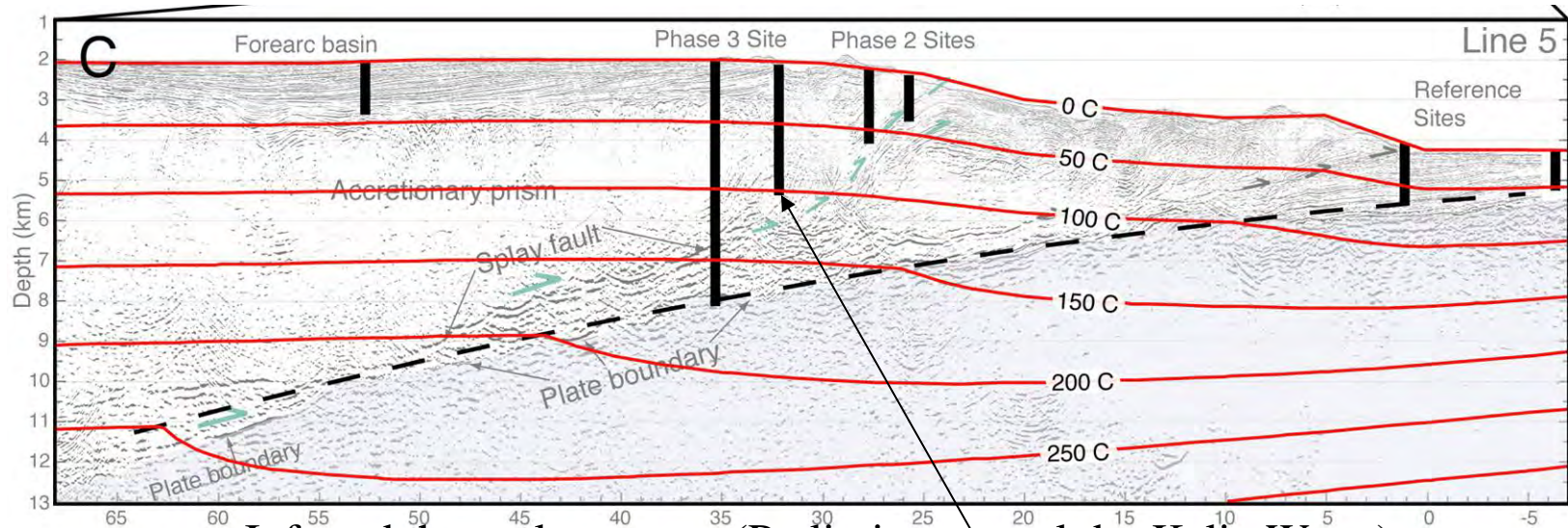
Observatory Concept

- Vertical array for near-field dynamics
 - Deep Riser boreholes
- Horizontal array for high-res. event characterization
 - Shallow boreholes
 - Seafloor stations
- Real-time, integrated system

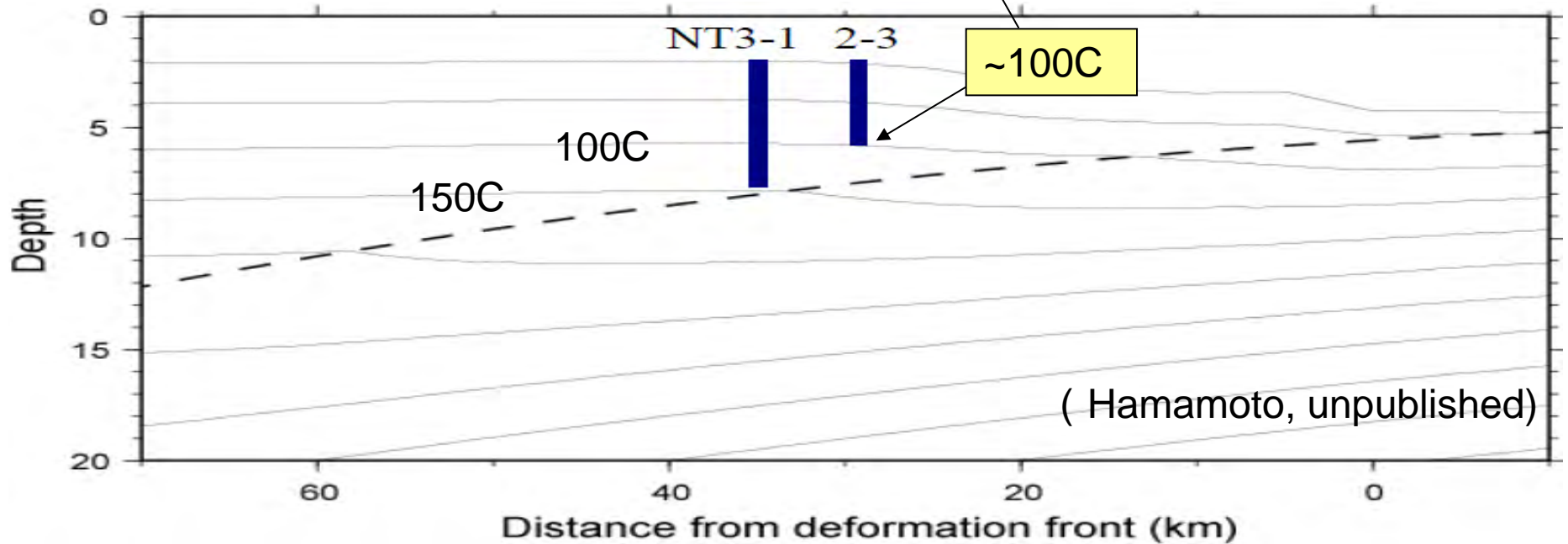


ROAD TO 4D MONITORING		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
		YR	YR	YR	YR	YR	YR	YR	YR	YR	YR	YR
IODP	I	4	5	6	7	8	9	10	II 1	2	3	4
CHIKYU		1	2	3	4	5	6	7	8	9	10	11
NANTRO drilling stages		STAGE 1		STAGE 2?								
BOREHOLE OBSERVATORIES		AREAL MONITORING				VERTICAL MONITORING						
		Shallow observatories				3.5 km					6 km	
		Mid term developments										
		High T seismic						operational				
		High T tilt										
		High T strain										
		High T cables										
		High T electronics										
		Outside casing lines										
		Long term developments										
		VHigh T seismic						operational				
		VHigh T tilt										
		VHigh T strain										
		VHigh T cables										
		VHigh T electronics										
TEMPORAL ARRAY		OBS-1		OBS-2								
DONET		construction					operational					
GPS-ACOUSTIC ARRAY		construction					operational					

Thermal structure off Kumano



Inferred thermal structure (Preliminary result by Kelin Wang)



Properties to be measured

- Interseismic deformation & strain
 - Strain (Sacks), Tilt, Pore Pressure (as a proxy for strain)
- Seismic Activity (low-freq. events)
 - Broadband seismometer, Seismometer array
- Hydrological properties (overpressure)
 - Pore pressure, temperature for

Predicted tilt due to VLF event

五ノ井観測所で予測されるVLF-対応した傾斜量の算出例(図-1.5.6.13)

赤丸は、1.5.5.2項中観測地点
の傾斜量算出

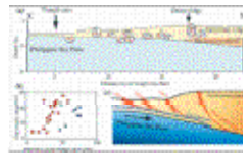
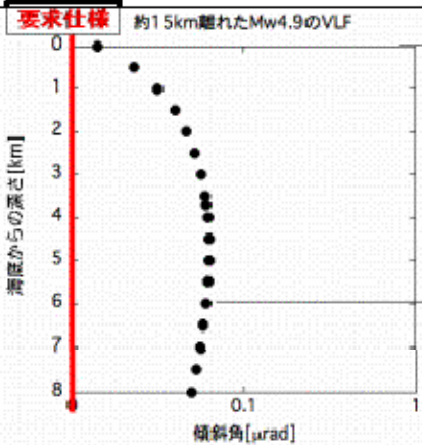
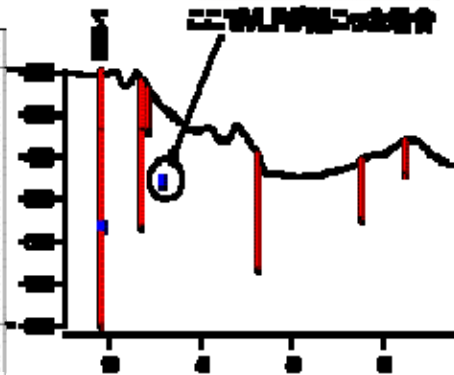


図3-15で説明した場合の予測図例



ここにVLFが起った場合



五ノ井観測所で予測されるVLF-対応した傾斜量の算出例(図-1.5.6.13)

赤丸は、1.5.5.2項中観測地点
の傾斜量算出

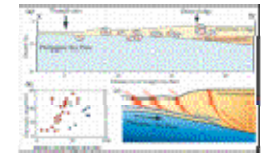
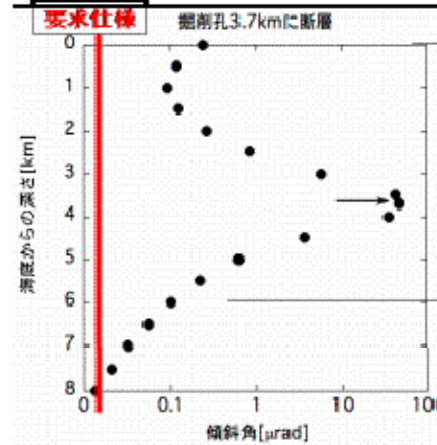
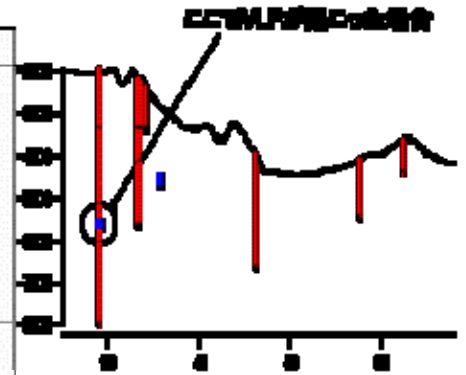


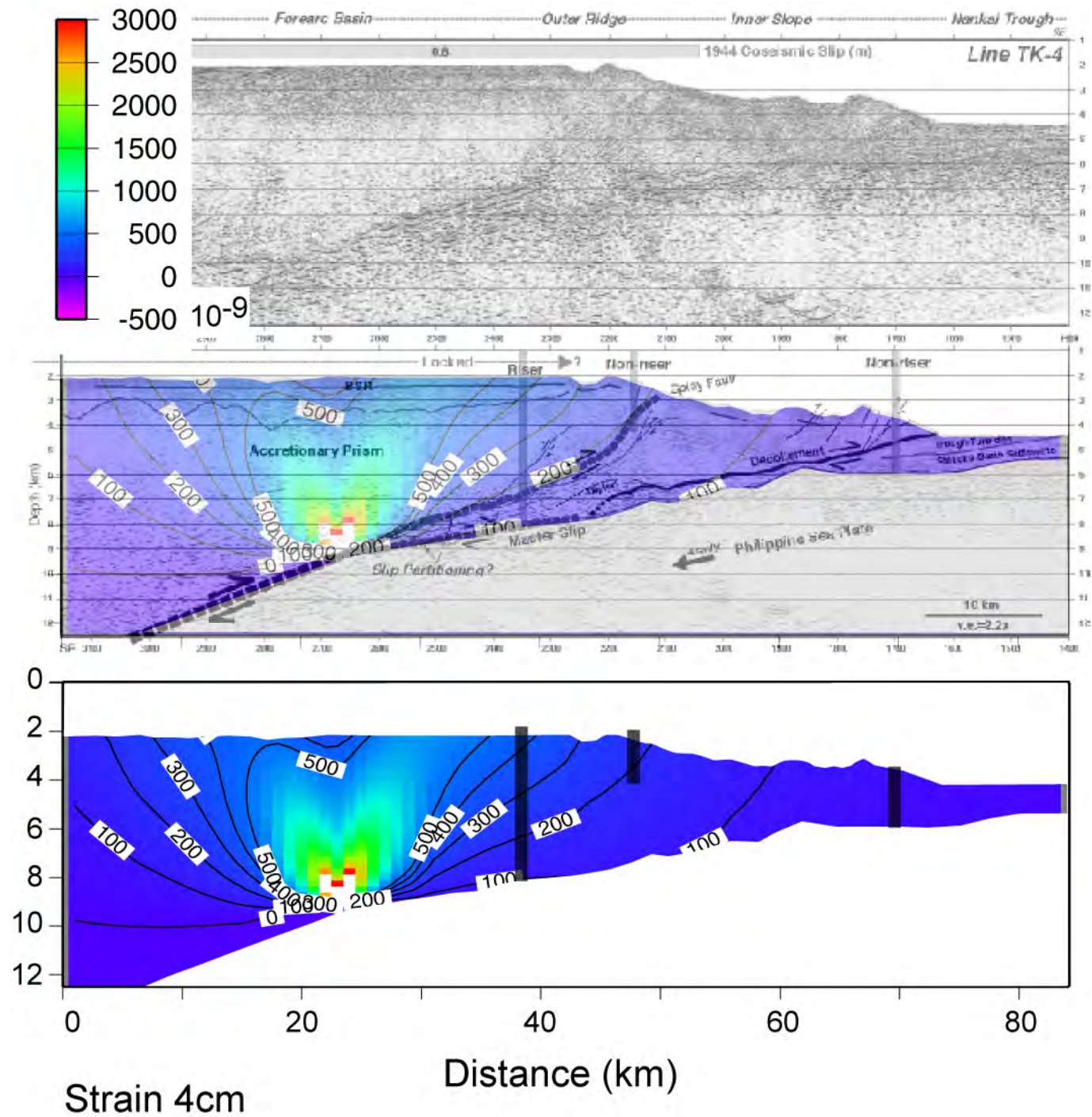
図3-15で説明した場合の予測図例



ここにVLFが起った場合



Strain

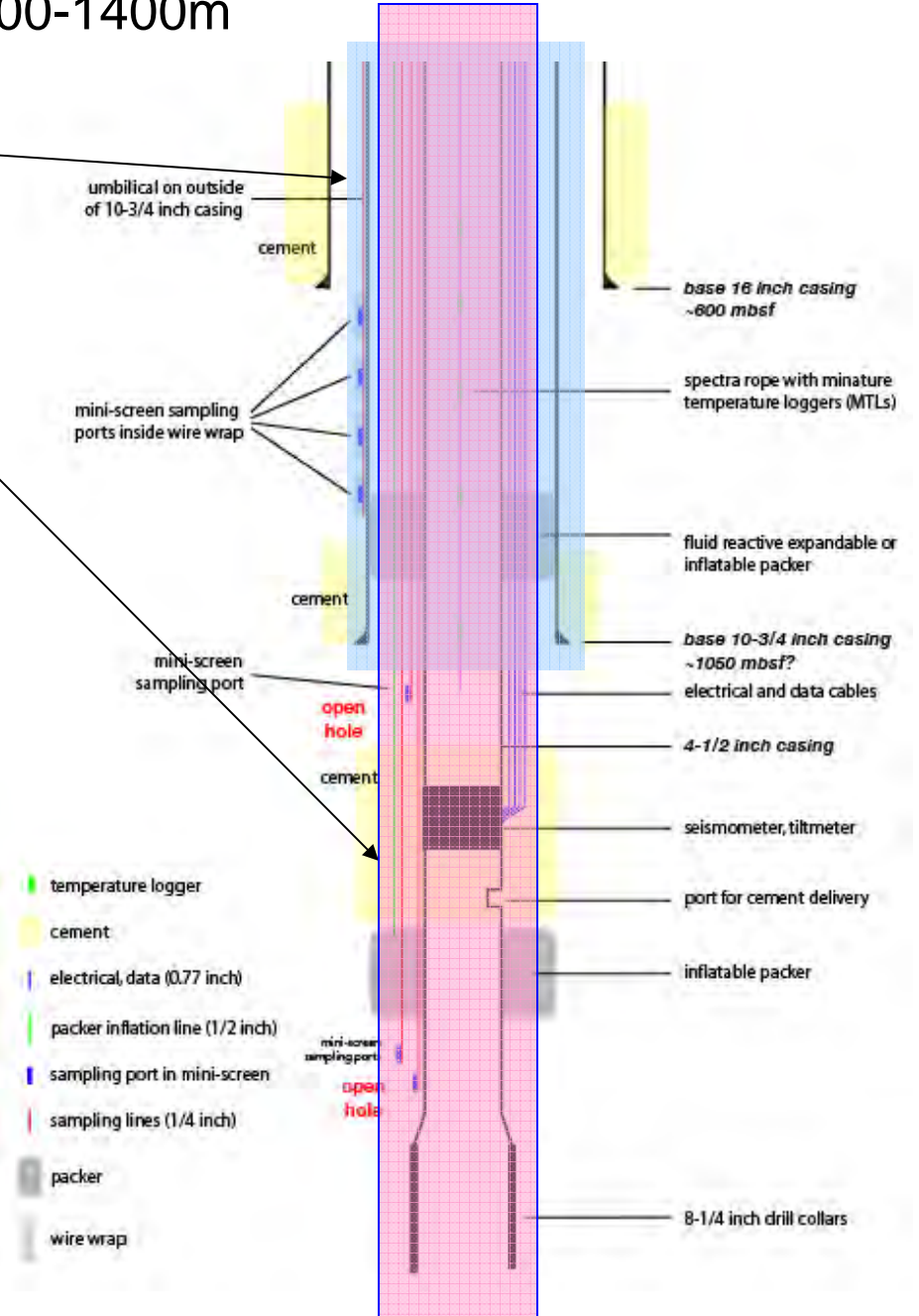
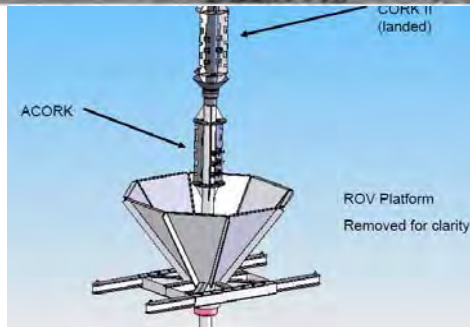
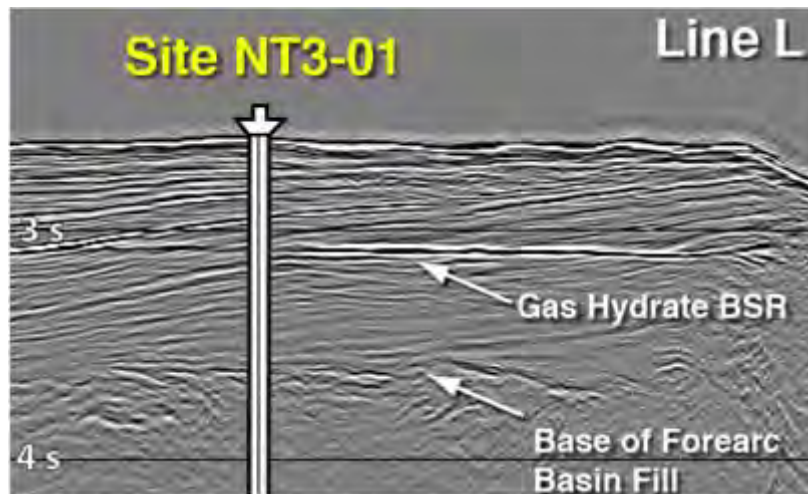


NT3-1 Non-riser Observatory - Deferred for 2008 JR Expedition

Water Depth: 2000m; Target Depth: 1300-1400m

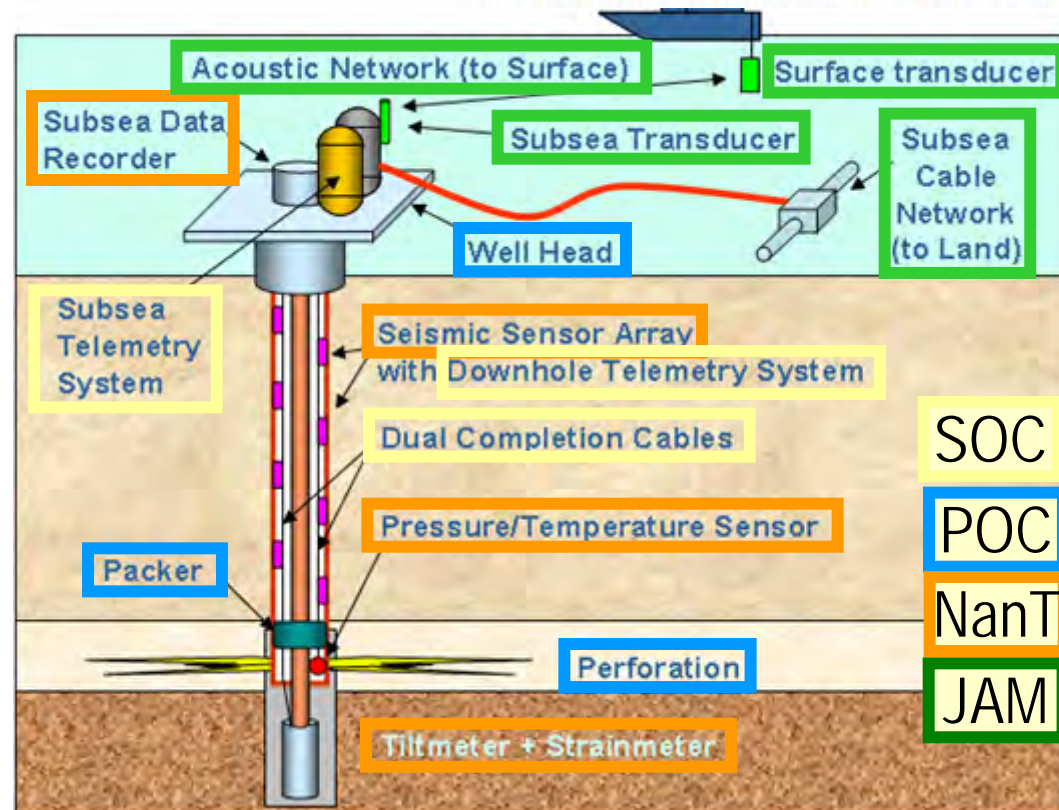
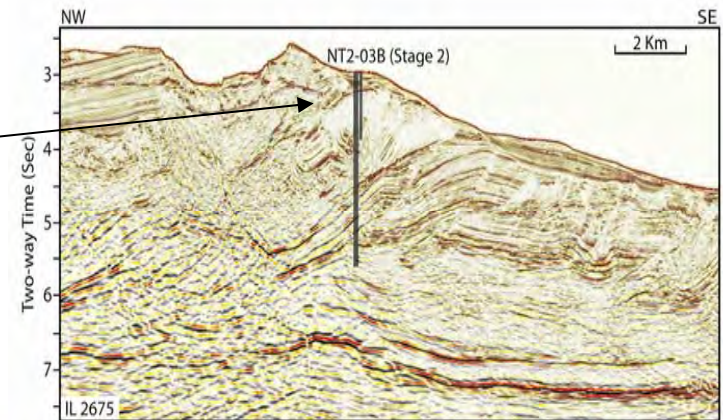
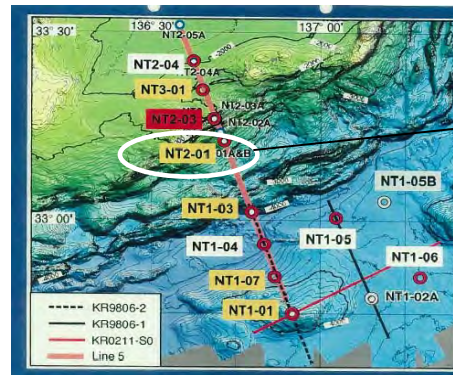
ACORK part
behind-casing pressure

NEREID/CORK-II part
cemented strain/tilt/seis

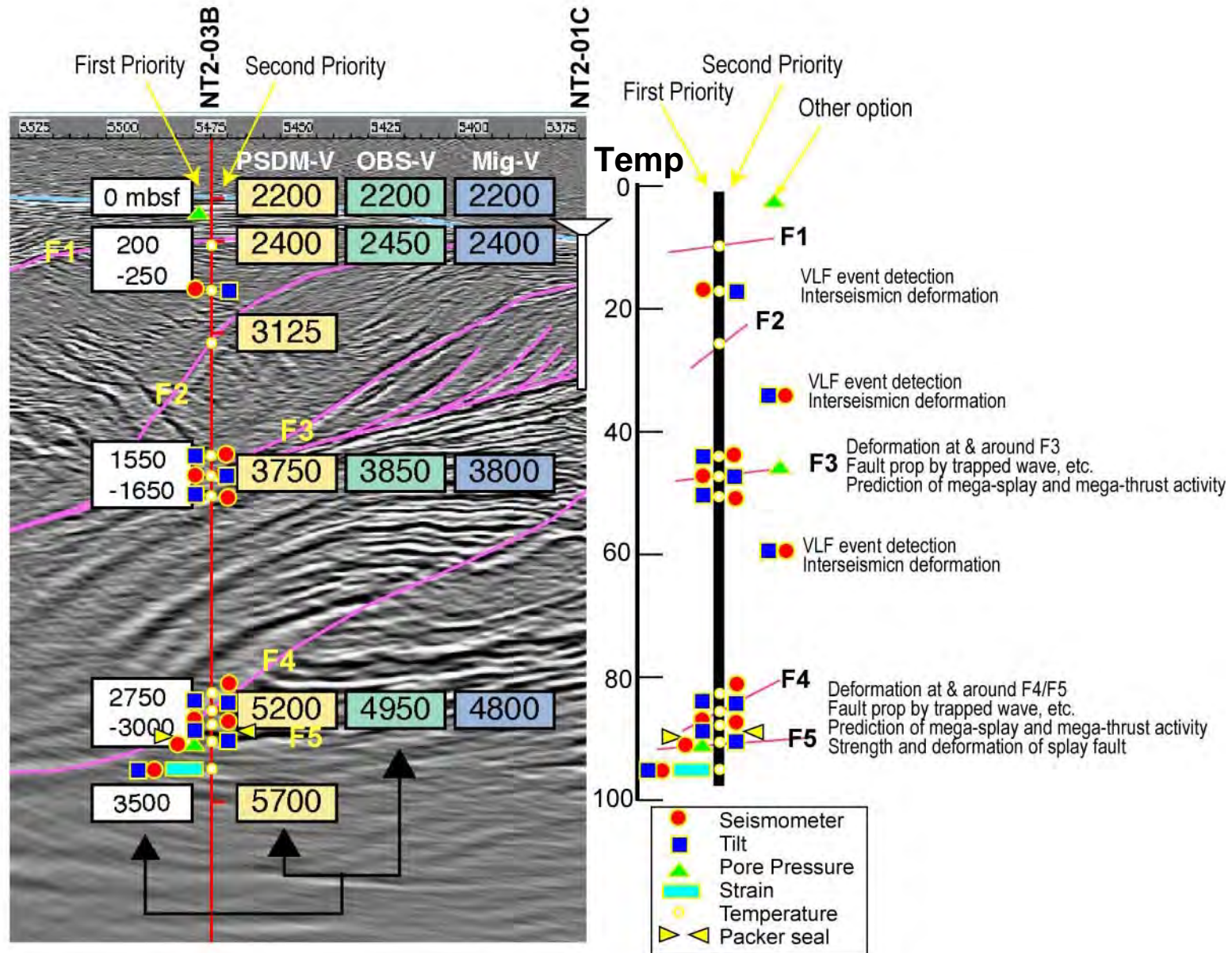


NT2-3 riser hole observatory

Chikyu, in 2011
 WD 2178m
 TD 3000-3500m
 Tbottom ~90-100°C
 Mega-splay



Proposed sensor distribution at NT2-03 (as of Mar.31, 2007)

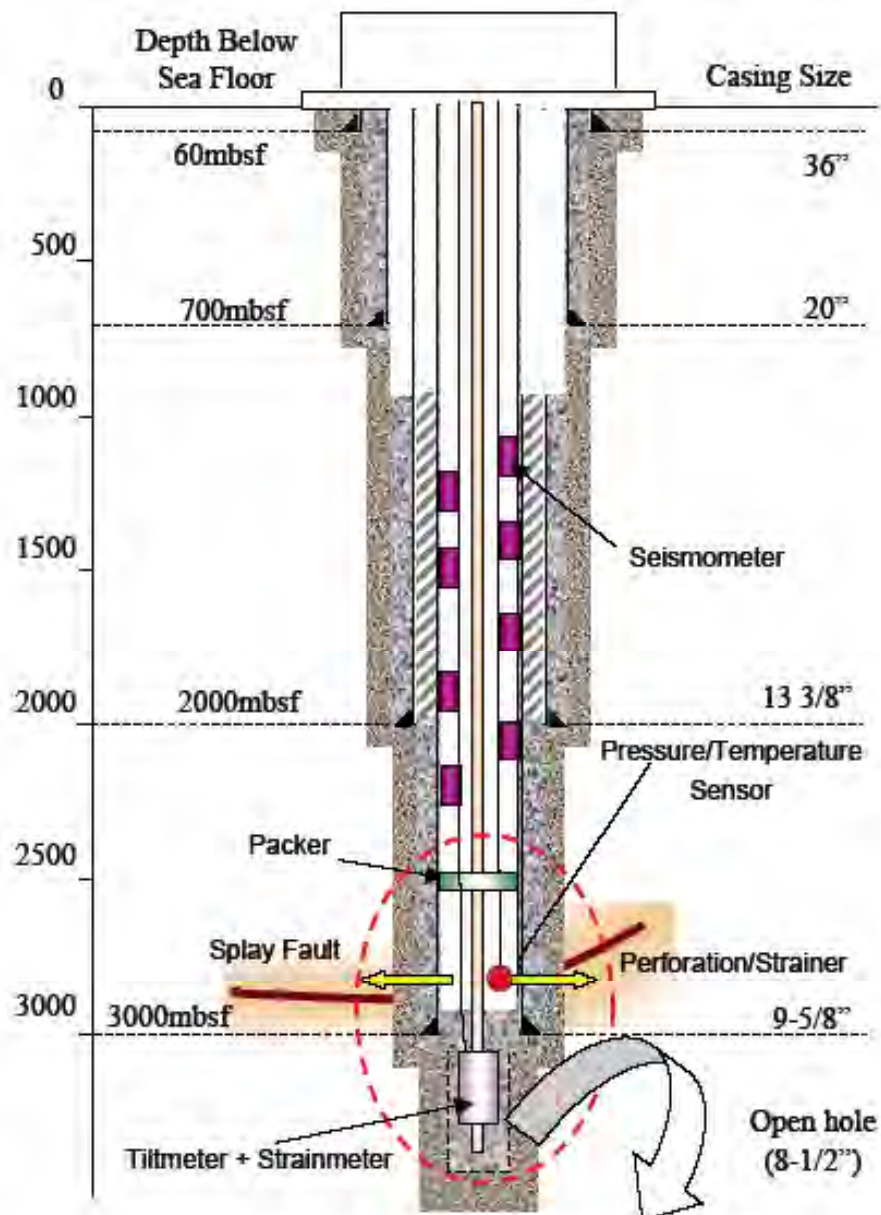


NT2-3 Riser Observatory

Based on CORK-II/NEREID
Type technology

Bottom-hole section:
Strain/Tilt/BBseis/PP
(cemented)

Mid-hole section:
Tilt/Seis/T Array
(Clamped?)



Major Technical Challenges (1)

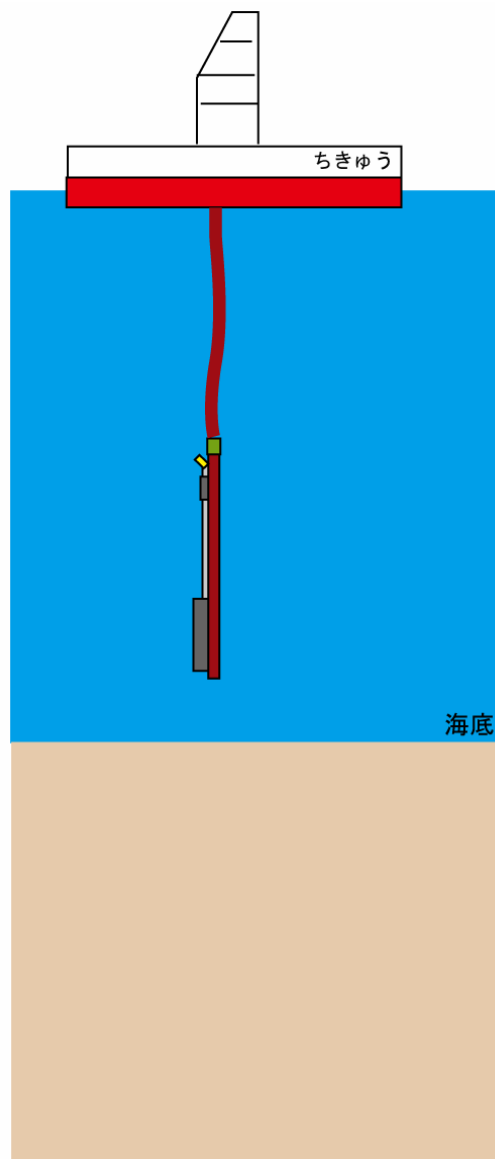
- *Monitoring at multiple intervals*
 - Strong scientific needs for geodetic/hydrologic monitoring
 - Since a riser hole is very expensive, multiple sensors in a single hole should be considered, instead of requesting multiple holes....
 - Major technical challenges are:
 - multi-stage sub-sea cementing technique (Strain&BBseis)
 - behind-casing technology (strain/PP), which needs major technical development at the wellhead (limitation in the number of feedthrough)
 - multiple packers in casing and perforation between packers (PP)
 - reliable clamping to the casing (tilt)
 - These needs a long-term planning with international support
- *High temperature*
 - Anticipated bottom-hole temperature for NT2-03 (3500m) and NT3-01 (6000m) holes are 100C and 170C respectively.
- *>5 years of monitoring, potentially for-ever.*

Major Technical Challenges(2)

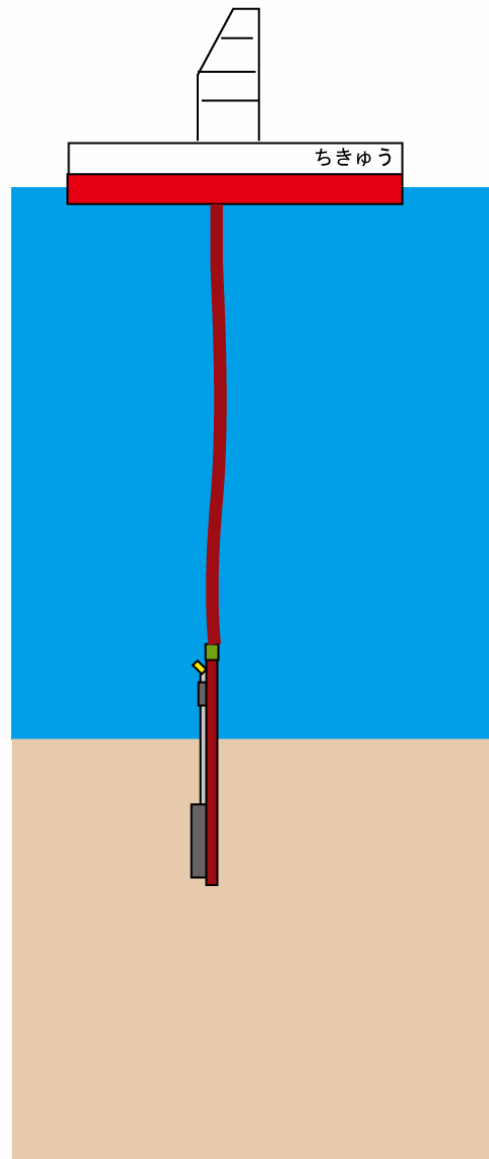
- *Data transfer*
 - Great hole depth causes attenuation of transferred signals
- *Coupling to the formation*
 - Cementing and clamping to obtain high-fidelity data
 - 10nrad for tilt, ~nstrain for strain.
- *Mechanical shock applied to sensors during deployment*
 - New strainmeter uses a soft metal to have better S/N
- *Vertical drilling AND core sampling at the fault interval*
 - Tiltmeter and seismometer currently available allow only +/-3 deg of instrument inclination.
- *Power supply and data recovery*
 - Connection to the seafloor cable network
- *Simpler deployment for shallow holes*

Jet-in installation of broadband seismometer

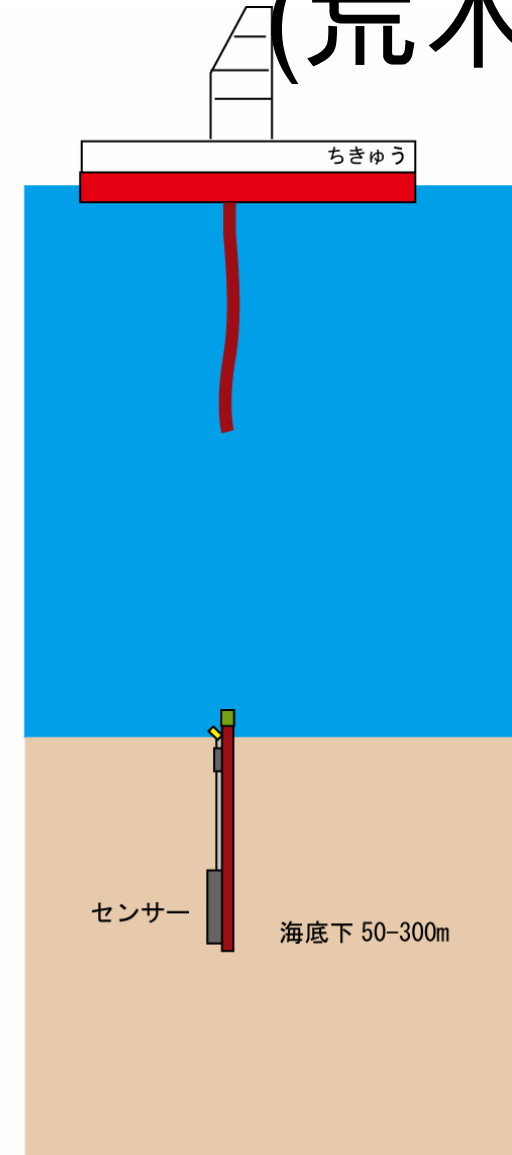
(荒木)



1. センサー pkg をドリルパイプの先に取り付け降下



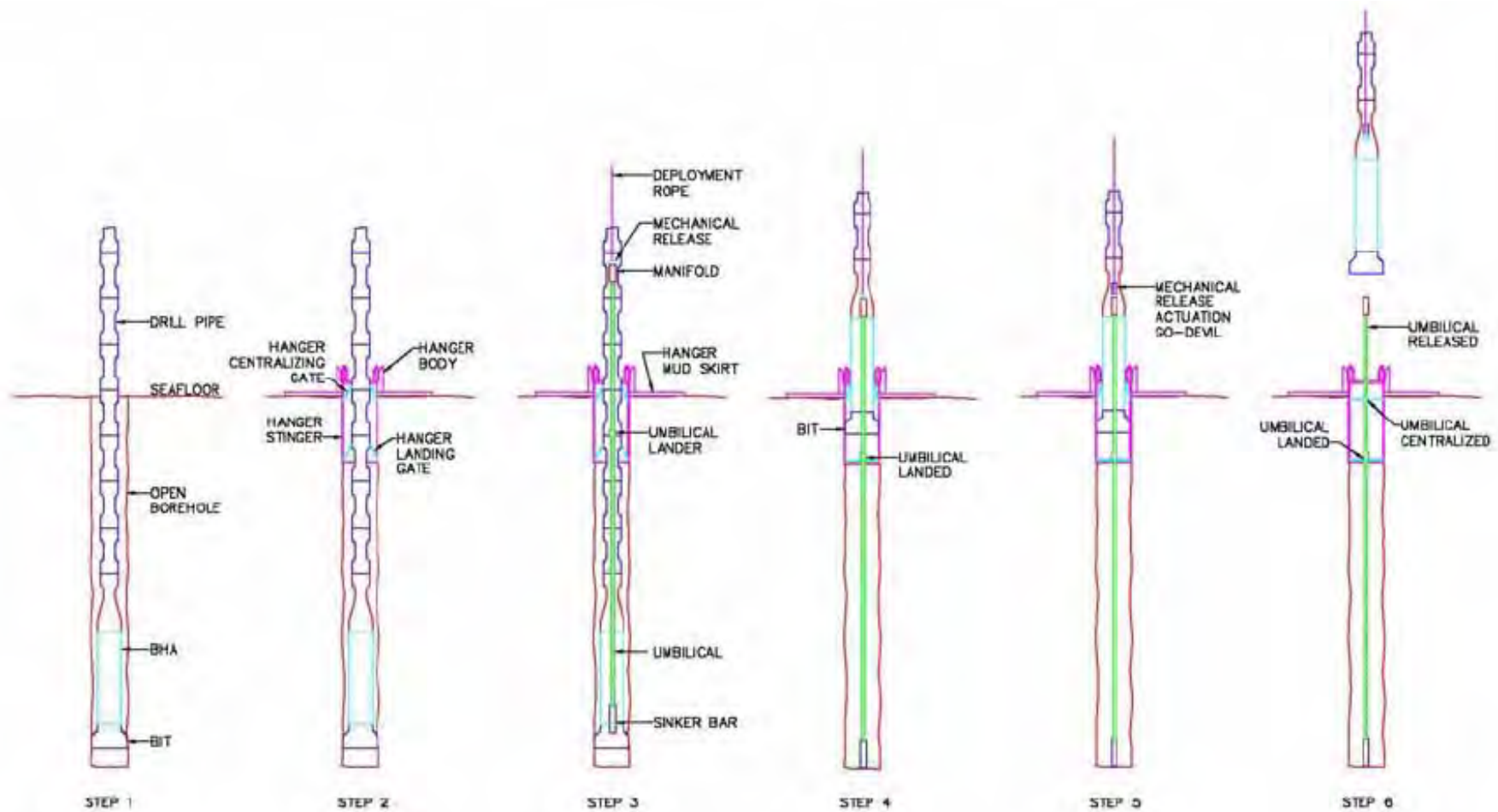
2. Jet in



3. コネクター部分が海底に来たところで
ドリルパイプを切り離し設置完了

Sediment CORK by Earl Davis

(荒木)



P-CORK DEPLOYMENT WITH FREE FALL DEPLOYED SEAFLOOR HANGER

Development Plan in JPFY2007

- Observatory at NT2-3 riser hiole (3.5km, 90-100°C)
 - Telemetry system (CDEX) and sensors (IFREE, etc.)
- Clamping test at onland borehole
- FS for Jet-in CORK and other technical development items
- NT3-1 nonriser hole observatory (CORK-II / ACORK)
 - Deployment originally scheduled with JR but deferred.
 - Using Chikyu for deployment is being considered

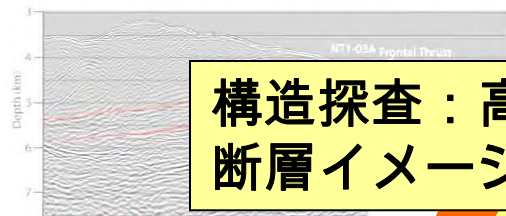
構造探査・物質分析/実験・現場長期観測・モデリングの統合による 南海トラフ巨大地震準備過程の解明

- M>8の巨大地震を引き起こす固着のメカニズム解明
- 地震発生/伝播断層の正体と挙動
- 地震準備過程の解明と地震発生予測

↓
IODPライザー船掘削等による
サンプリング・ロギング・長期モニタリング

JAMSTEC長期観測網
Inter-Center Project Teamの
構築による重点推進

計画研究 A01-1 高精度イメージング



構造探査：高精度
断層イメージング

現場長期観測

モデリング

断層実験

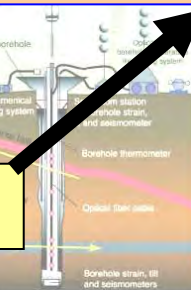
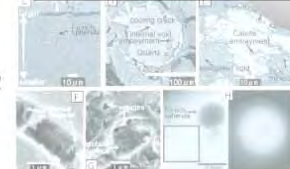
断層物質
分析

海底変動
総合観測



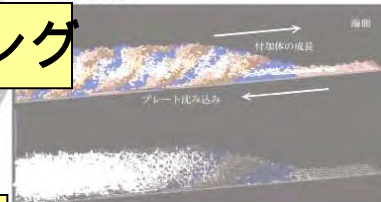
断層活動を海底構造から解読

計画研究 A02-2
断層物質分析
地震断層の物質科学過程の解明



地震準備過程変動
の連続長期観測

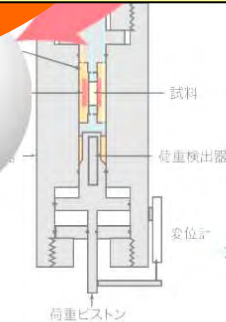
計画研究 A03-2 モデル



断層構造・物性・状態変動から
地震発生過程をモデル化

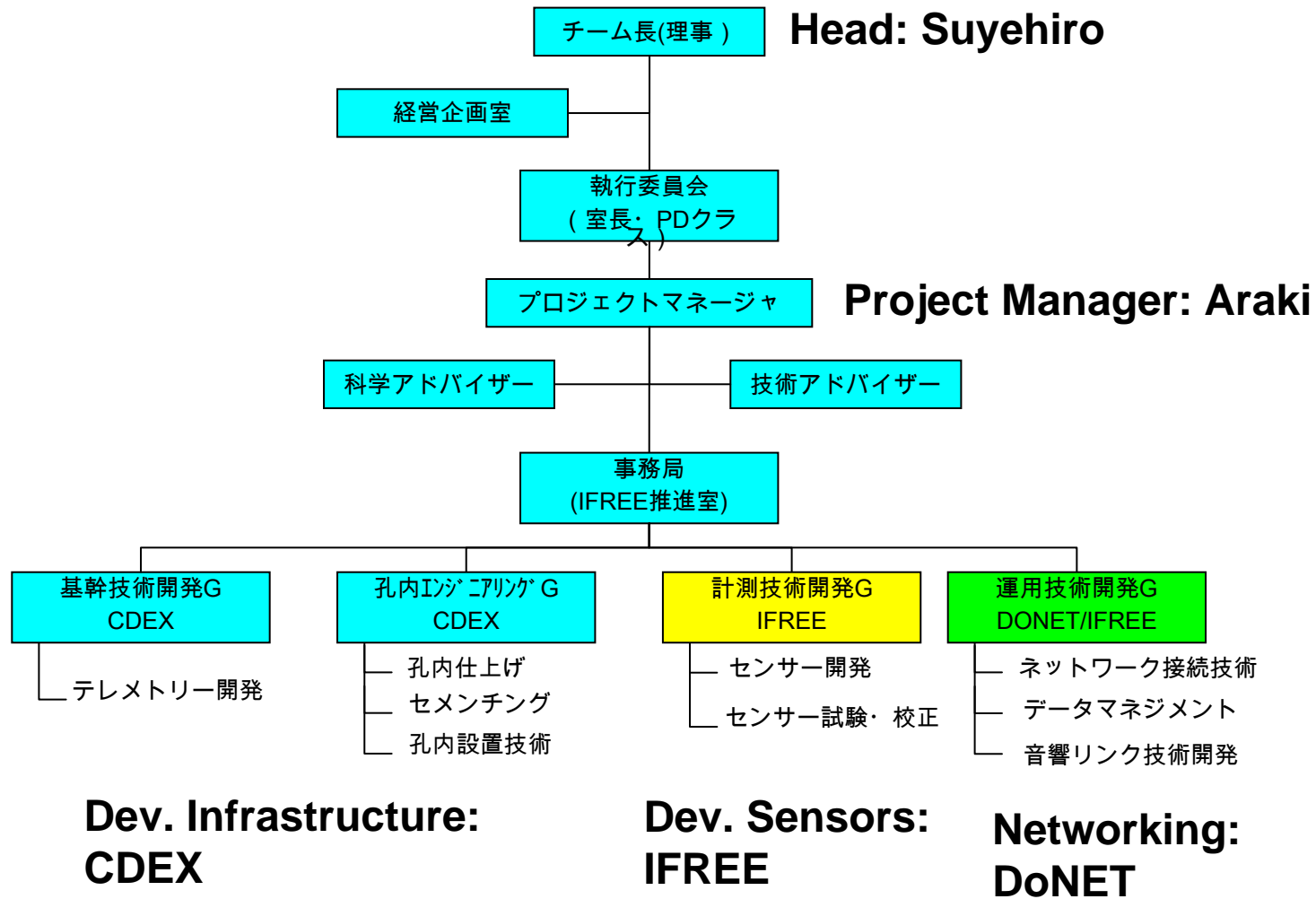
計画研究 A02-1
断層実験

地震断層の再現・構成則の解明



JAMSTEC長期観測網

Inter-Center Project Team(案7.23)



Observatory Updates (July-07)

- **Overall Observatory Plan – Priority and Framework -**
 - Multiple shallow holes
 - NT3-1CORK
 - CORKS proposed in 603D
 - Jet-in CORK / Sediment CORK (Addendum or Eng. Dev. Prop.)
 - Deep riser holes
 - NT2-3 Mega splay (3500m, 100C, >5 years)
 - NT3-1 Mega thrust (6000m, 170C, > 5 years)
 - NT2-3 retrievable station needs reconsidered (“learn step-by-step” vs. “once set you should keep it”, etc.)
- **Reorganization**
 - JAMSTEC Observatory Framework being reorganized
 - Obs. Mtg planned in Oct-07 to redefine a practical roadmap that meets NanTroSEIZE science objectives – needed to get funding approval
 - International framework to promote observatory required
- PMT submit recommendations for NanTroSEIZE Observatory

Observatory Updates (July-07)

- JASMTECの体制が変わったこと
- 予算を得るためには科学目的に合致した現実的な計画を示す必要 国際WSを10月に開催予定
- NT2-3 Temporaryは慎重に検討する必要がある
- 全体計画
 - Multiple shallow holes
 - NT3-1CORK
 - 603 D-CORKの優先度を議論する
 - Jet-inCORKやSedCORKはどう考えるか
 - Deep riser holes
 - NT2-3 Mega splay (3500m, 100C, >5 years)
 - NT3-1 Mega thrust (6000m, 170C, > 5 years)
- IODPのObservatory提案の中で南海Obsの重要性を作文

Exp#314 Staffing

- Japan
 - Kinoshita (CC), Saito (Lithostratigraphy), Yamada (Structural/Image), Nakamura (Integration), *Miyakawa
- US
 - Tobin (CC), Moore, Gulick, Martin, Sewer
- Europe
 - McNeil, Tudge, Bourange, Conin, Jurado
- Korea/China
 - Chang (Korea) (Breakout)
- EPM
 - Moe
- CDEX
 - Philip, Sanada, Kido, Greg

Appendix F

“Community” Rock Physical Properties Sampling Plan

Implementation and Rationale:

In addition to samples requested and taken by individual scientists for post-cruise analyses, we intend to collect substantial numbers of "community" archive samples as part of the overall NanTroSEIZE sampling program for rock physical properties; this will include both whole-rounds (WR) and split core samples. The "community" samples will complement and/or provide redundancy for those requested by shipboard scientists. The goal is to preserve samples for a wide range of overall science objectives over the duration of the NanTroSEIZE project.

Specifically, “community” samples will be taken to ensure that complete and consistent data sets for rock physical properties are obtained at all sites. The essential data sets include: permeability, frictional properties, and consolidation behavior, all measured over a wide range of experimental conditions. For Stage 1, the general community sampling strategy will include:

- (1) Regularly spaced whole-rounds, with spacing to be determined by Geotech and Lithostratigraphy SC's, expedition co-chief scientists, and/or shipboard physical properties group leader(s). We anticipate that the spacing will be 1 WR every 1-2 (possibly every 3) cores.
- (2) Additional whole rounds taken as necessary to obtain redundant representative samples from each major lithology or near breaks in lithology or at diagenetic boundaries.
- (3) Samples from split core to augment whole-rounds, and for zones where intact whole round samples are not obtainable.

We anticipate that the SAC and specialty coordinator (SC) will work closely with all members of the scientific party to ensure that the “community” sampling plan is closely coordinated with individual sample requests. The “community” sample archive will be open to requests from all interested shipboard scientists; sample access and distribution will be managed by the PMT to fulfill the following goals.

- (1) Ensure that down-hole *spatial* trends in rock properties are adequately characterized.
- (2) Ensure that the comprehensive suite of *key data types* is obtained, with adequate spatial resolution.
- (3) Allow redundancy in sampling and assessment of inter-lab reproducibility. This is especially important for post-cruise experimental studies, because lab protocols vary widely between labs and are not rigorously standardized, lab configurations and capabilities (e.g. stress range, strain rates, temperature control) differ substantially, sample handling and preparation can impact test results, and interpretations are often based on a small number of experimental results due to the time needed for each test.
- (4) Preserve material so from critical intervals that may not be identified until after the expedition (e.g., on the basis of post-cruise experimental results).

Locations and sizes of samples:

HPC: Sections 2 or 3 are best (3 if DVTP was run on previous core)

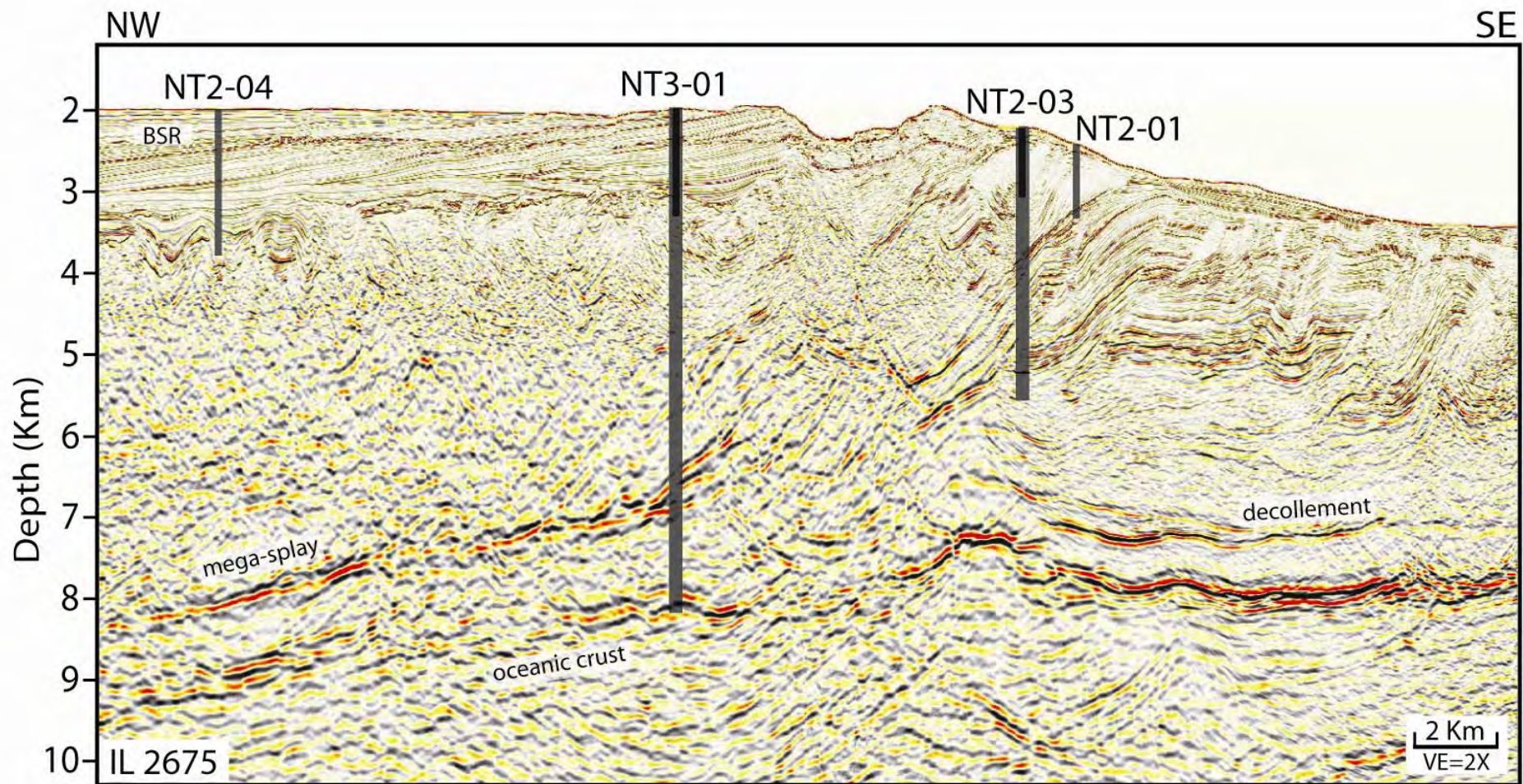
RCB: Sections 6 or 7 or Core Catchers

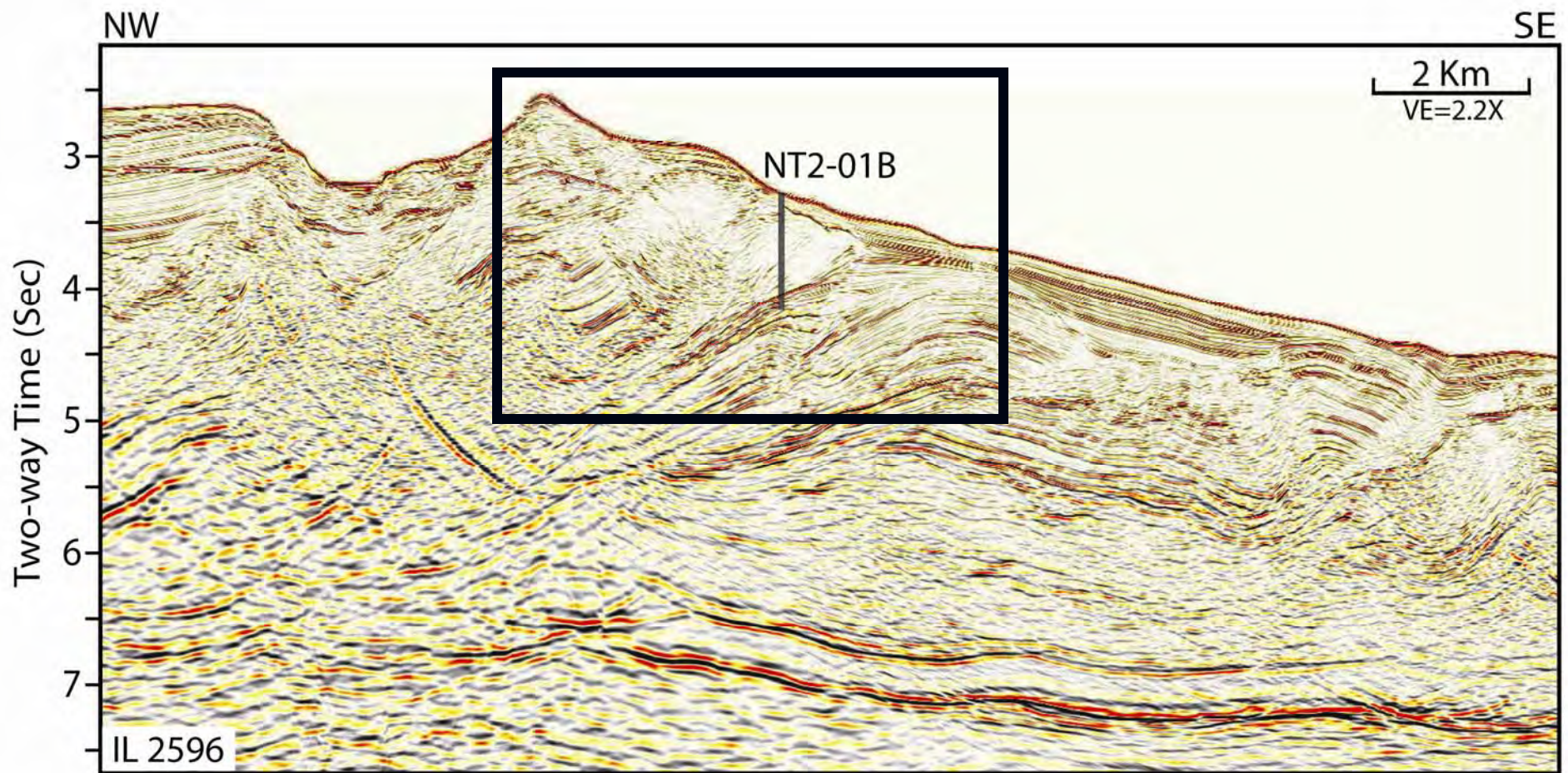
WR ~20-25 cm-long

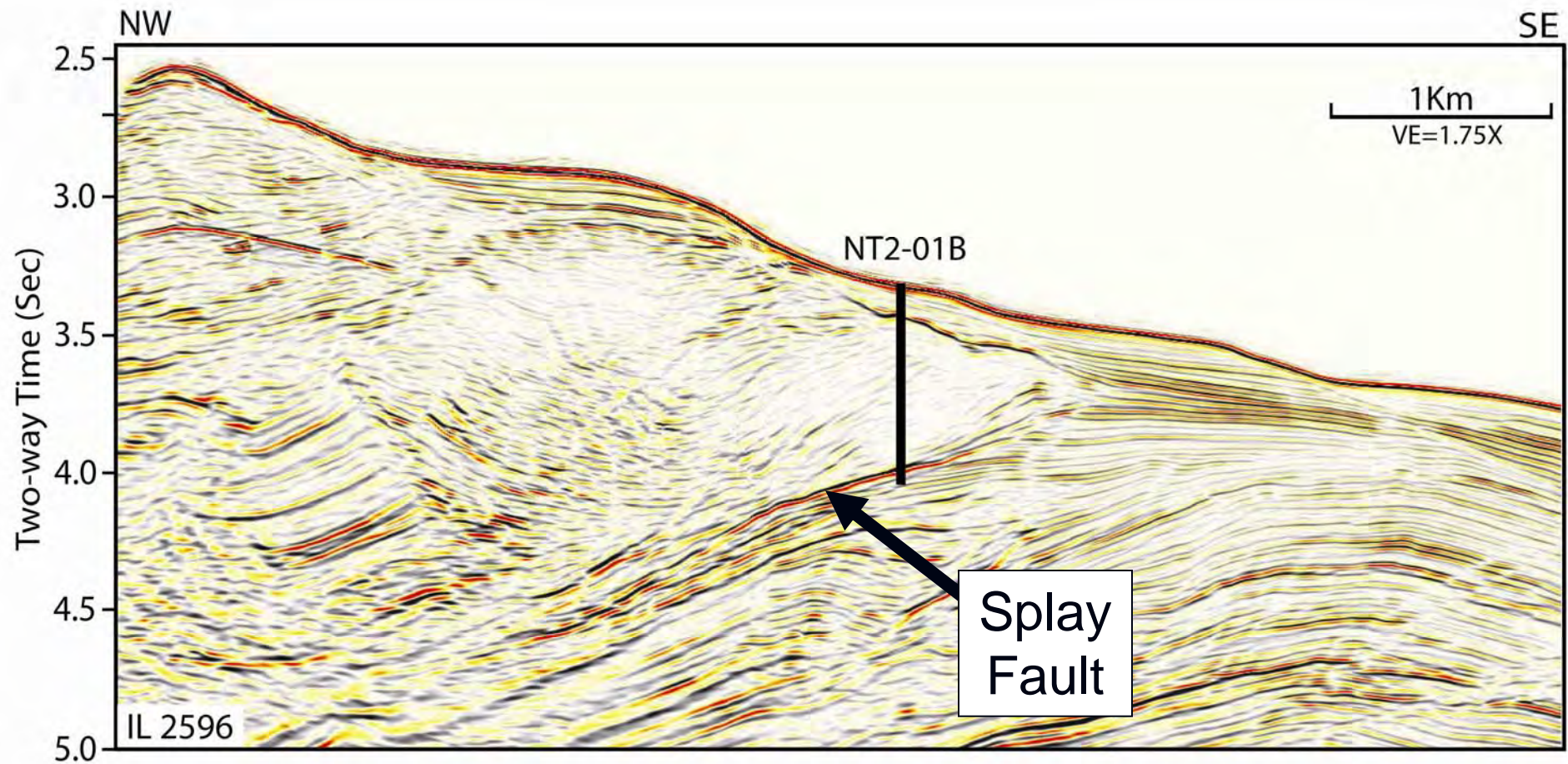
Adjacent WR ~8 cm-long

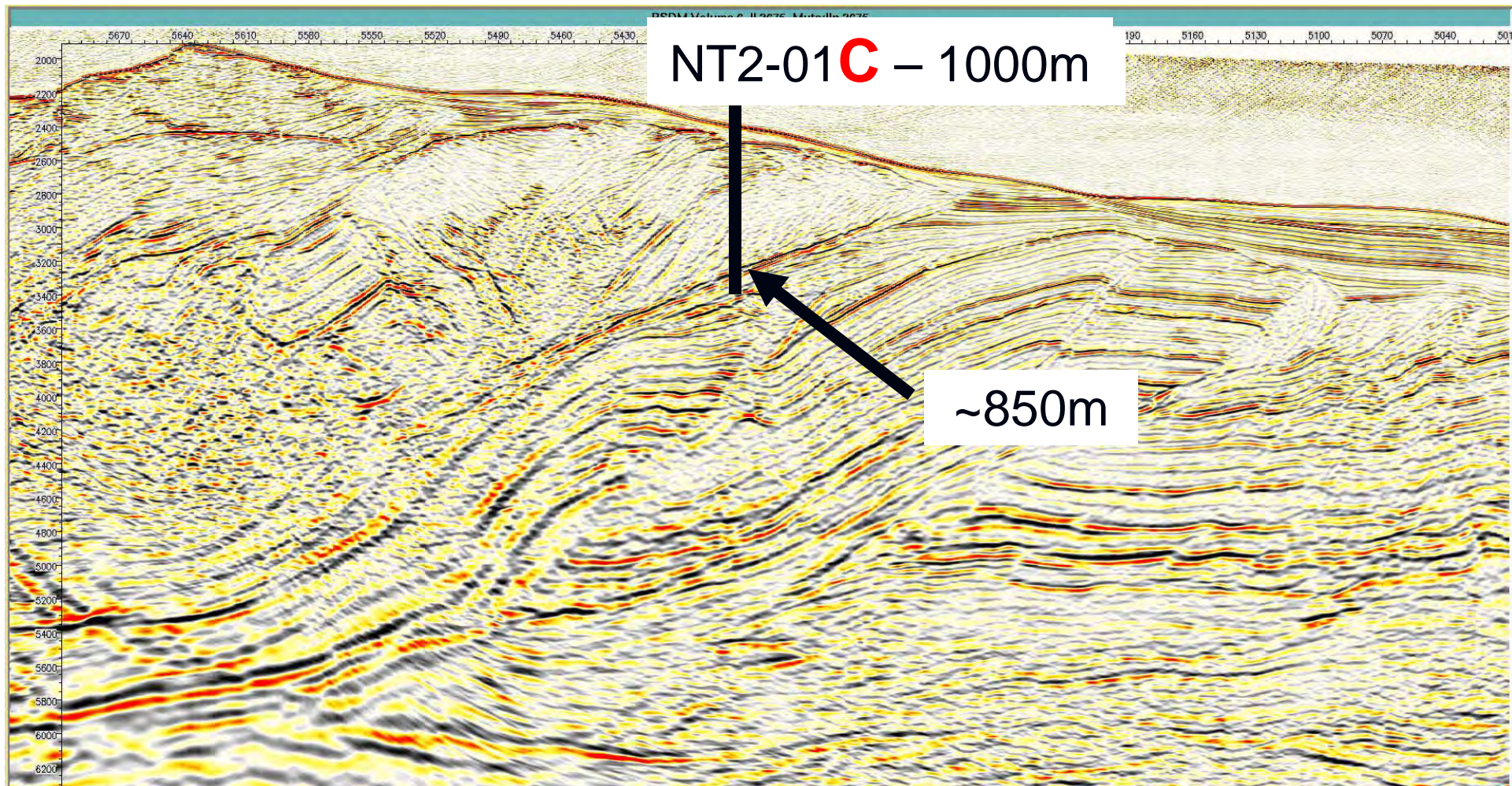
Split core samples: ~100-200 cc

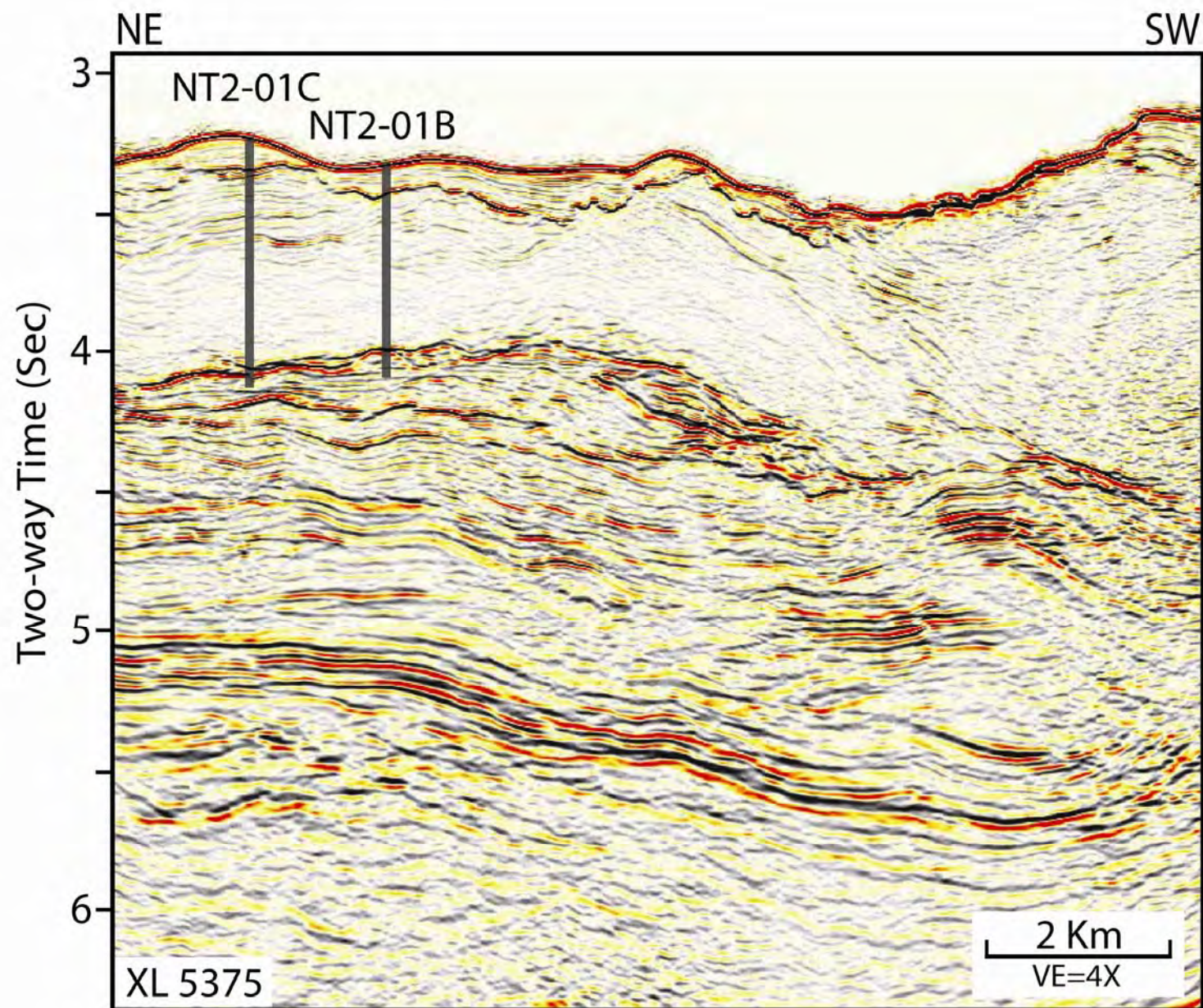
Appendix G

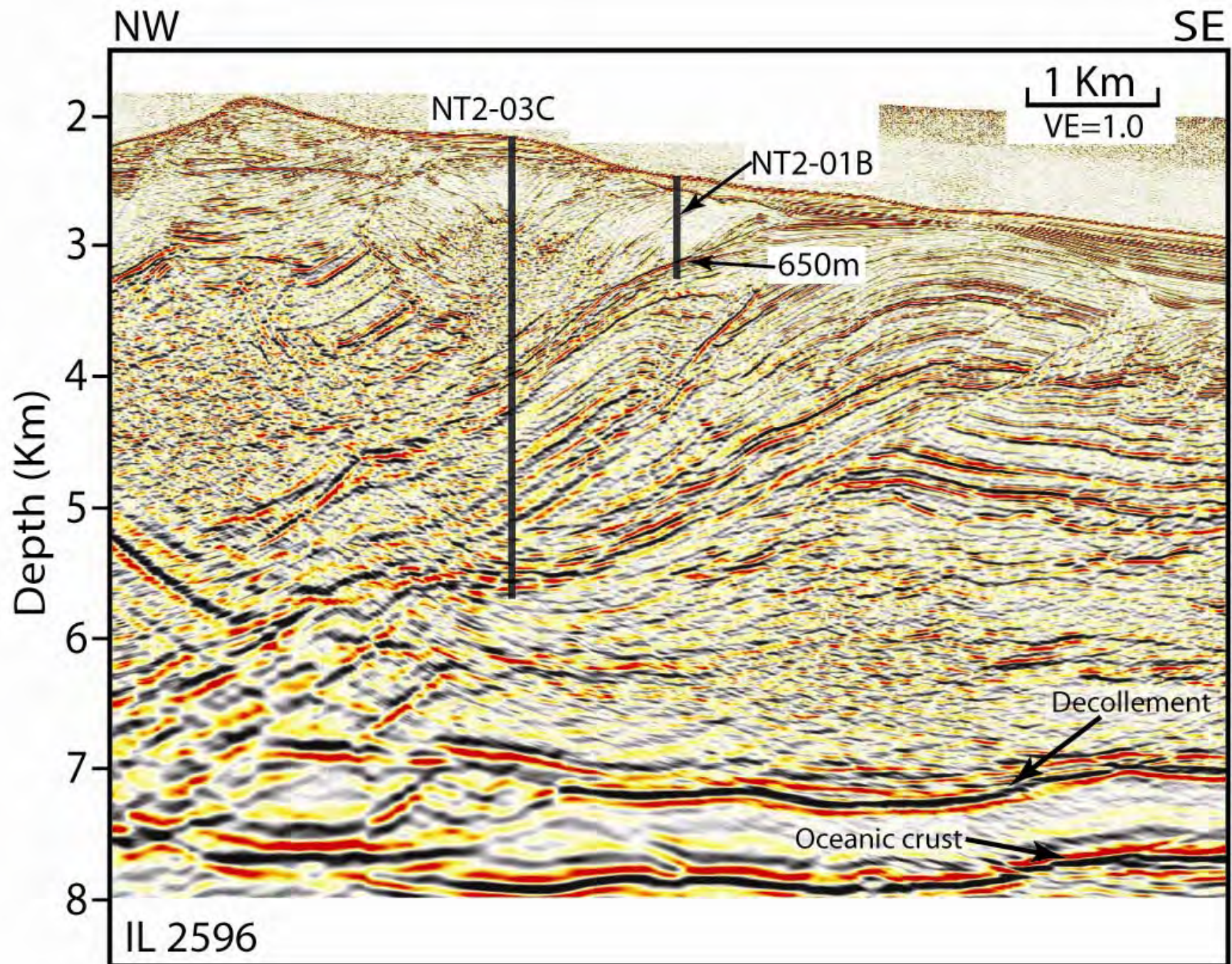


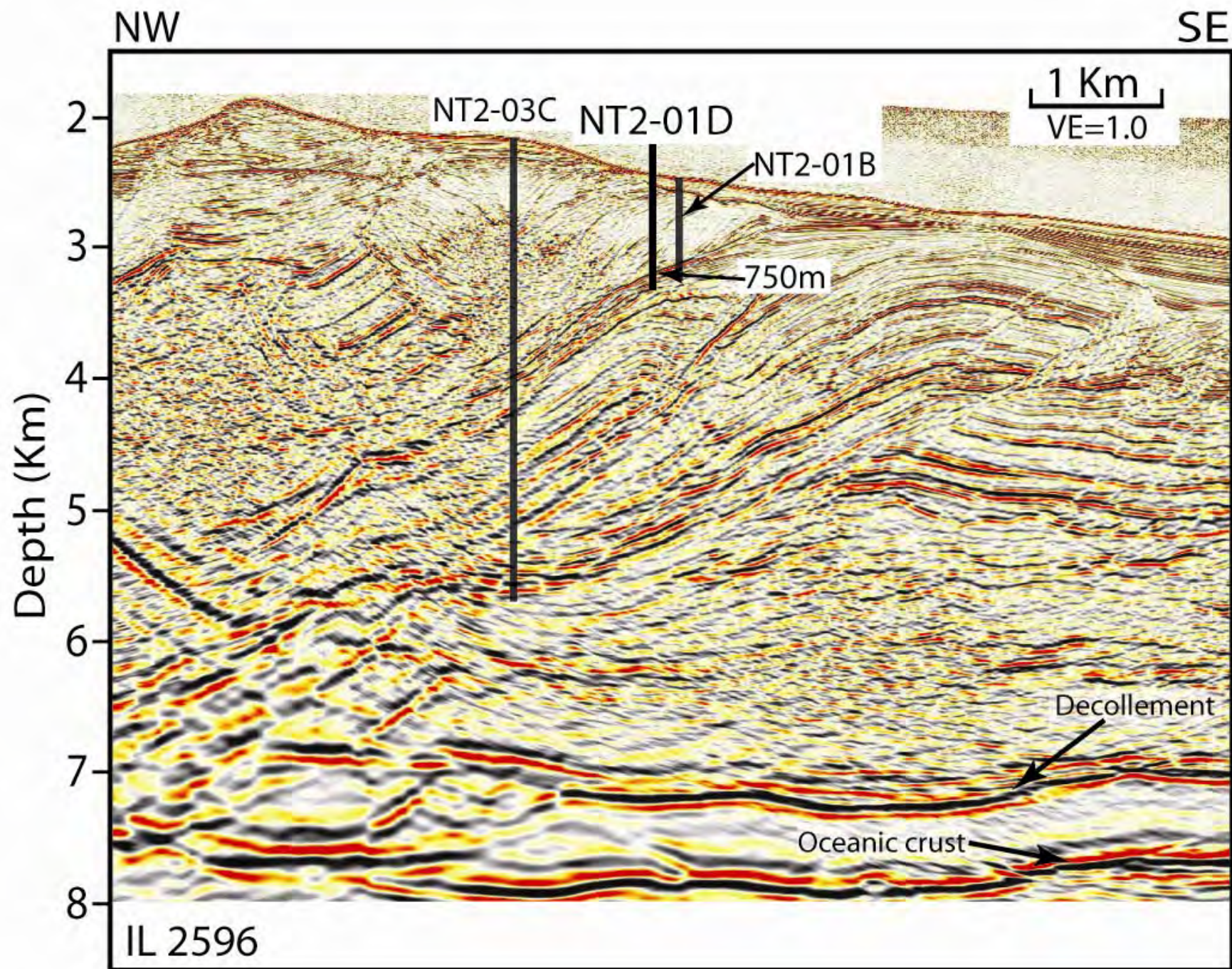












NW

