ECORD FB June 16 Meeting
3.3 Chikyu IODP Board (& CDEX) update

CDEX Nobu Eguchi

#4 Chikyu IODP Board Meeting

- **23-24 March 2016**
  - **Kobe University Takikawa Memorial Hall**
- 15 consensuses and 5 action items were made.
- Three members (H. Villinger, H. Kawahata, and C. Moore will be rotating off (end Sep.), new member call is open.
- Important consensus items are…

#4 CIB meeting consensus

- **CIB_Consensus_0316-03:** The CIB endorsed the "Implementing Amphibious Drilling Proposals (ADP) in IODP-ICDP" guidelines in concept with the understanding that ADPs will follow IODP sample and data policies and guidelines.
- **CIB_Consensus_0316-04:** The CIB recognized that the Proposal 865 Nankai Trough T-Limits PCT proposed alternate site (ODP11-74B) does not change the scientific targets of the project.
- **CIB_ActionItem_0316-02:** The CIB will inform the SEP of the proposed site changes not affecting the project science targets at the next SEP meeting in June 2016.

#4 CIB meeting consensus

- **CIB_Consensus_0316-06:** The CIB strongly encourages working closely with CDEX/JAMSTEC in terms of improving funding for long-term Chikyu scientific ocean drilling from Japanese government. Stressing the scientific importance and societal relevance of Chikyu science, along with maintaining the international leadership of Japan in ocean drilling must be part of this effort.

- **CIB_Consensus_0316-07:** The CIB endorsed the execution of the shorter version of Proposal 865, Nankai Trough Temperature Limits for the JFY2016 IODP window. The CIB also endorsed the execution of the NanTroSEIZE C0002 deep riser hole in JFY2018 if operation budget is available.

- **CIB_Consensus_0316-08:** The CIB recognized that the large riser projects currently at the CIB (i.e. CRISP, IBM, and Hikurangi) will not be implemented during JAMSTEC's current 5-year term ending in March 2019.

#4 CIB meeting consensus

- **CIB_Consensus_0316-09:** The CIB tasks the Science Board (Moore, Kawahata, Mori (Chair), Villinger, and van der Pluijm) to review riser drilling proposals and consider long term strategy for future Chikyu implementation. The Science Board will prepare for a detailed discussion regarding the eventual determination, including possible prioritization, of riser proposals by end of September 2016.

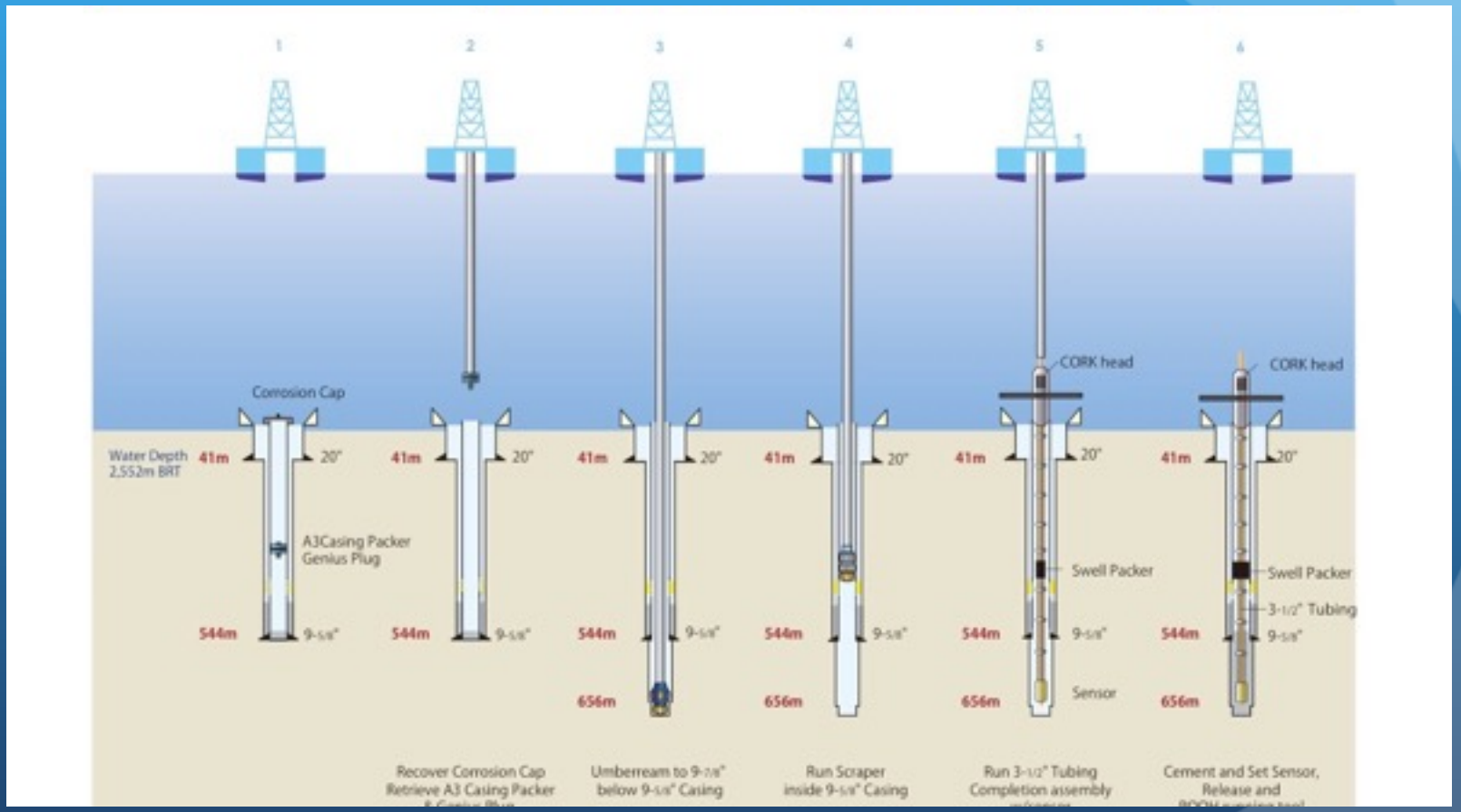
- **CIB_Consensus_0316-11:** The CIB confirms that no new riser proposals, with the exception of CPPs, will be solicited.

- **CIB_Consensus_0316-12:** The CIB recognized the importance of ABS issue, and expects updated information at the next meeting.

IODP 365 Overview

- Expand NanTroSEIZE borehole observatories
- Recover GeniusPlug installed during IODP 332 (Nov 2011)
  - Pressure & temp sensors
  - Geochemistry & FLOCS experiement
- Install 2nd NanTroSEIZE LTBMS (~650 mbsf)
  - Strainmeter, tiltmeter, seismometers, and pressure ports

Operation sequence



Science Party – Co Chief Scientists

Achim Kopf _ MARUM
Exp 315, 319, 332

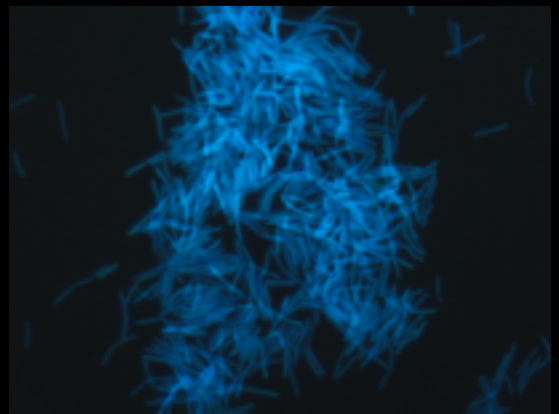
Demian Saffer - PSU
Exp 314, 319, 332, 338, 348

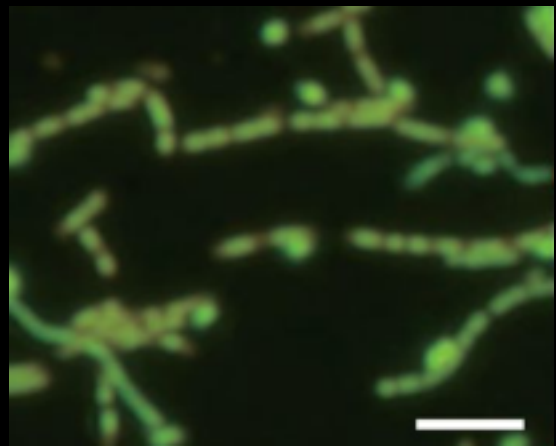
Expedition results

- 26 March – 27 April 2016; to/from Shimizu, Shizuoka
- 33 days for expedition, including 3 days contingency
- Successfully retrieve GeniusPlug
- Successfully install LTBMS
- Time left, use it for coring (about 70 m of core), sampling party will take place end of July onboard
- Good outreach program
- LTBMS DONET hook-up will take place in few days

IODP Expedition 370 will tackle the question;

"what is the vertical extent of the habitable zone on Earth, and by inference, the factors that limit life's maximum depths?"

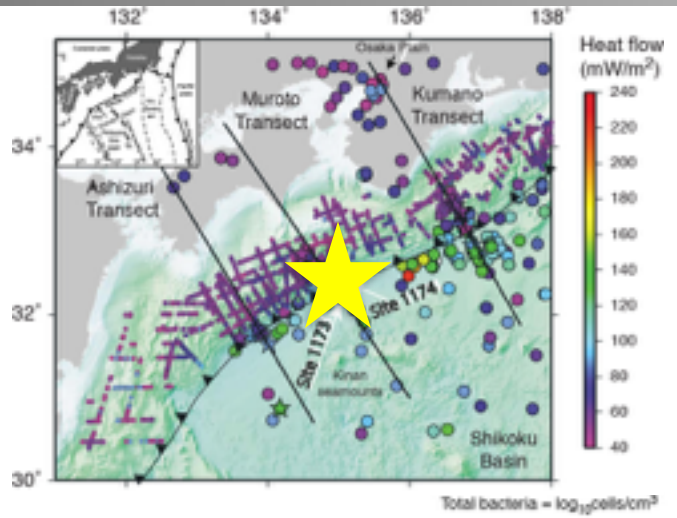




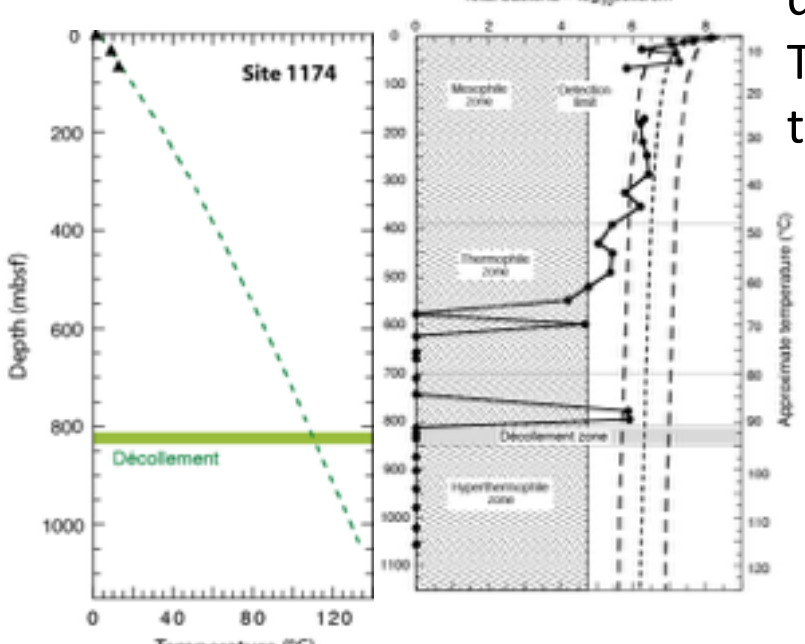
IODP Expedition 370

T-Limit of the Deep Biosphere off Muroto (T-Limit)

Deciphering factors that constrain the extent of the deep biosphere in a subduction zone



High heat flow regimes in this area result in temperatures of about 130°C at the sediment/ basement interface (1210 mbsf), encompassing the biotic/abiotic transition zone.



Data from ODP Leg 190 shows that cell abundance drops below detection limit at 600 mbsf (70ºC). The detection limit has been drastically improved in the last decade.

Key elements of the expedition will be

- Quality core from accretionary prism
- Analysis of low-biomass samples
- Contamination control
- Accurate temperature monitoring

IODP Expedition 370

T-Limit of the Deep Biosphere off Muroto (T-Limit)

Deciphering factors that constrain the extent of the deep biosphere in a subduction zone

◇ Schedule： 10 Sep, 2016 to 10 Nov, 2016
Shore-based science party: 24 Sep to 24 Nov

◇ Operation：
- ◇ Drilling/coring to 1240 mbsf
- ◇ Installation of temperature observatory.

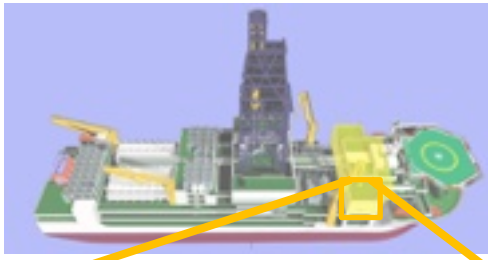
◇ Science Party： Total of 25-30 scientists work concurrently in shipboard and shore-based (@Kochi Core Center) teams, using samples directly shipped from Chikyu by helicopter.

◇ Co-chief scientists
- Verena Heuer (MARUM)
- Fumio Inagaki (KCC)
- Yuki Morono (shore-based, KCC)

CHIKYU Lab Facilities
Refit and Renovation

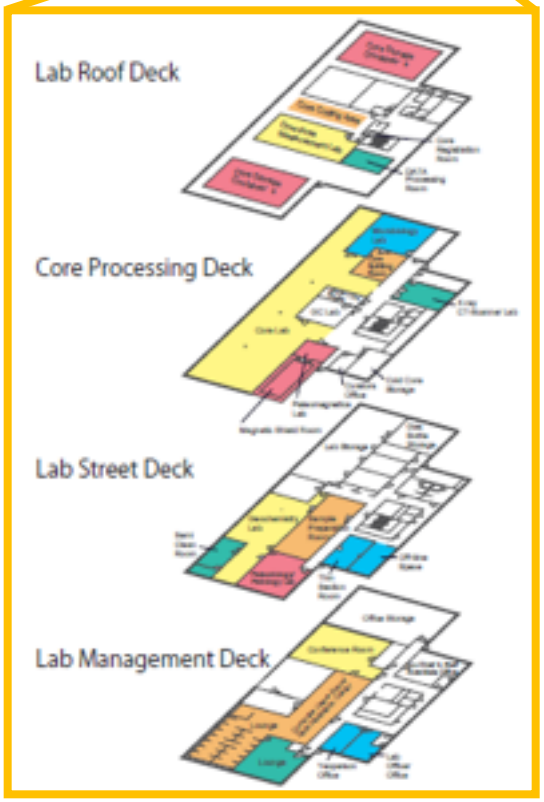
JAMSTEC CDEX CENTER FOR DEEP EARTH EXPLORATION IODP INTERNATIONAL OCEAN DISCOVERY PROGRAM

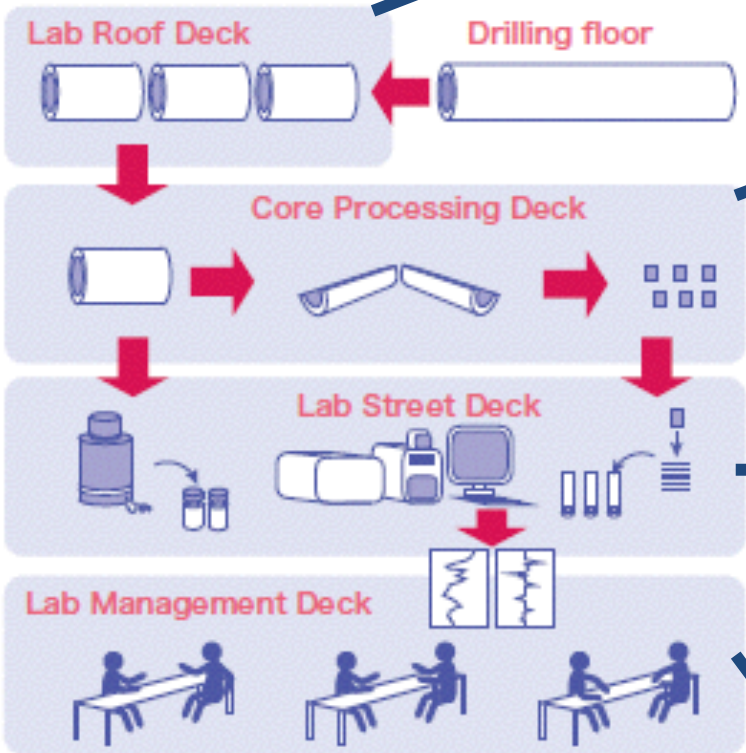
Chikyu Lab Facilities



Lab Facilities are at the fore side of the *Chikyu* which have 4 floor deck.

Each Lab facility has available to treat samples of each expedition.





Need newfangled technology and new vision depend on *Chikyu* 10-year old. *Chikyu* is ready in next phase of IODP expedition.

Lab Modification Concepts

For next 10-year Lab development program

STEP 1 **Shakedown** → STEP 2 **Develop** → STEP 3 **Contribute**

1. Optimization

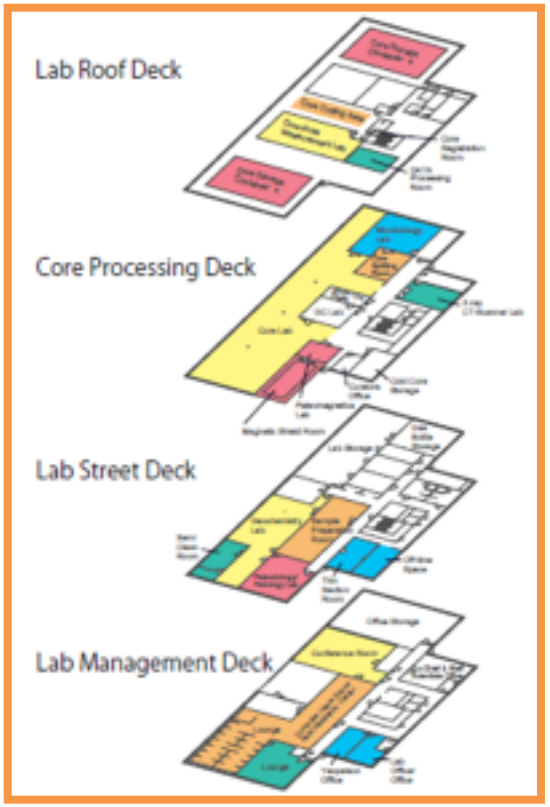
- New work flow for Core and Cuttings powdered samples lab
- New logging monitors
- More CCTV monitors

2. Flexibility

- Open spaces Working and Archive moveable tables to fit each expedition
- Analytical tools
- 3rd party tools
- Specific needs

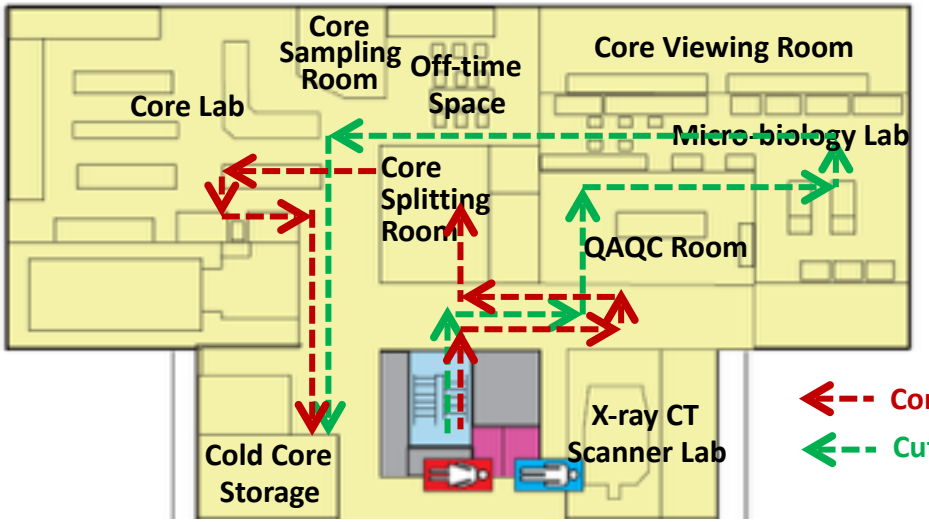
3. Safety and Comfort

- Automatic door for Core Splitting Room
- Separate flow paths reduce opportunities for accidents
- New dedicated work space for Cuttings
- Library and Lounge remodeling
- New personal work spaces

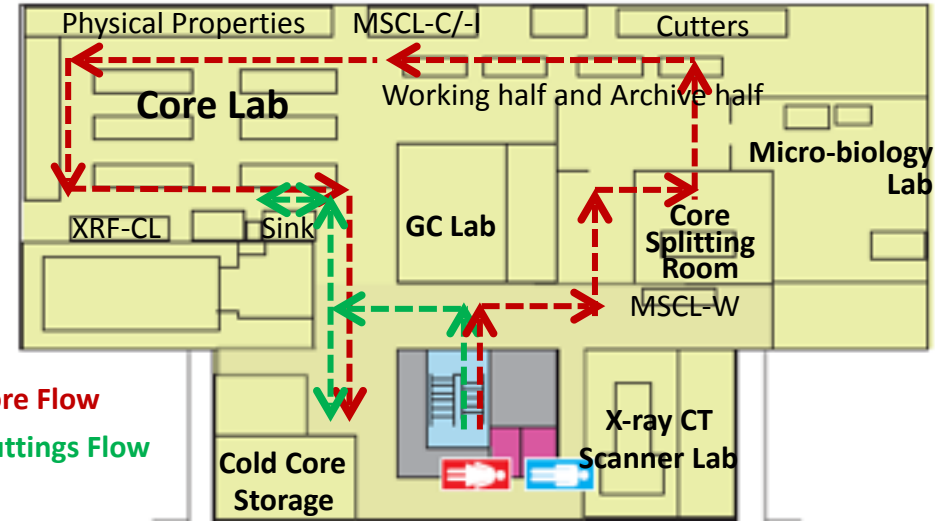


1. Optimization

Before

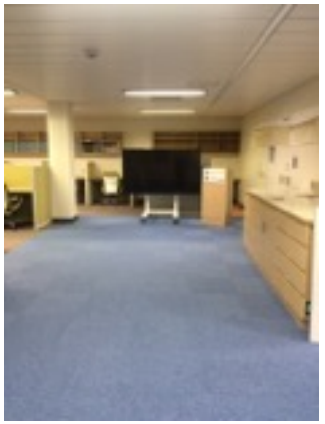


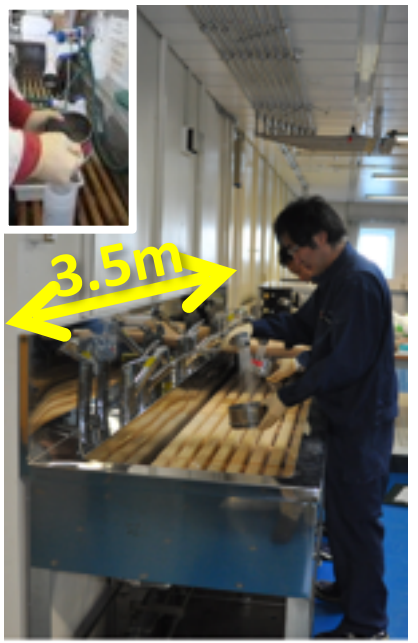
After



- New work flow for Core and Cuttings powdered samples lab

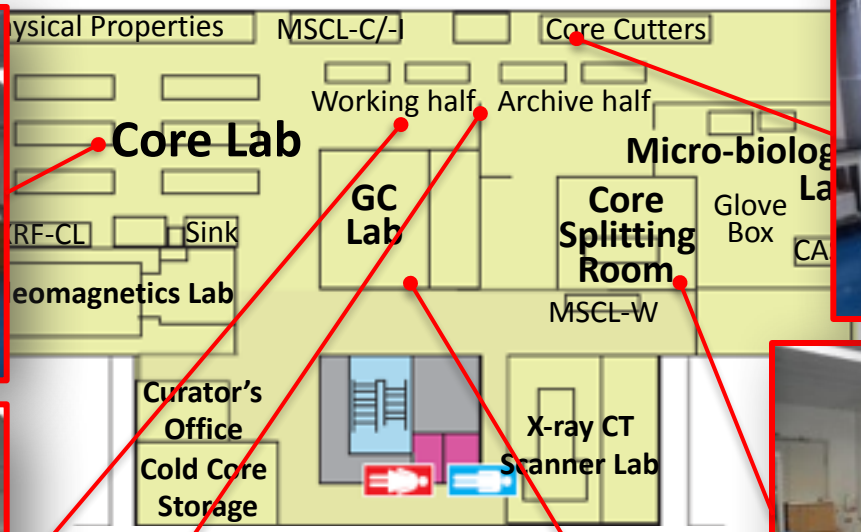
- Large sink for cuttings
- New logging monitors
- More CCTV monitors





2. Flexibility

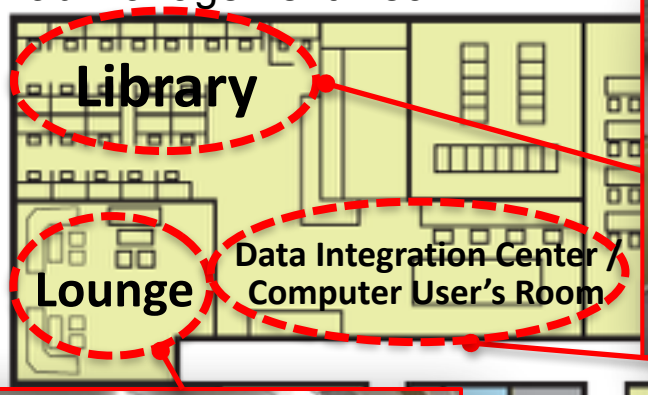
After



- Open spaces Working a
  moveable tables to fit each expedition
- Analytical tools
- 3rd party tools
- Specific needs

3. Safety and Comfort

Lab Management Deck



- Adopted requests from the scientists （**Library, Lounge, Data Integration Center, Co-Chief Scientist Office**）
- Changed other Lab furniture for CPD and LSD
- Installed automatic door for Core Splitting Room

Upgraded and New instruments

LAB KAIZEN Action items and Results

◆**Current to end of 2015**

Items	Total	Done	Canceled	Postponed
Common	8	**1**	2	**5**
Core Cutting Area	7	**1**	0	**6**
Core Processing Deck	120	**77**	9	**34**
Lab Street Deck	50	**17**	0	**33**
Lab Management Deck	19	**8**	0	**11**
Other	4	**0**	0	**4**
Total	208	**104**	11	**93**

For next 10-year Lab development program

Next step "Develop" and are starting forward

CDEX Outreach

- Exp. 365 videos (ScienceMedia NL)
- JpGU Exhibition Booth with ICDP
- Goldschmidt conference Exhibition Booth with ECORD
- International Chikyu onboard school (ECORD participation)