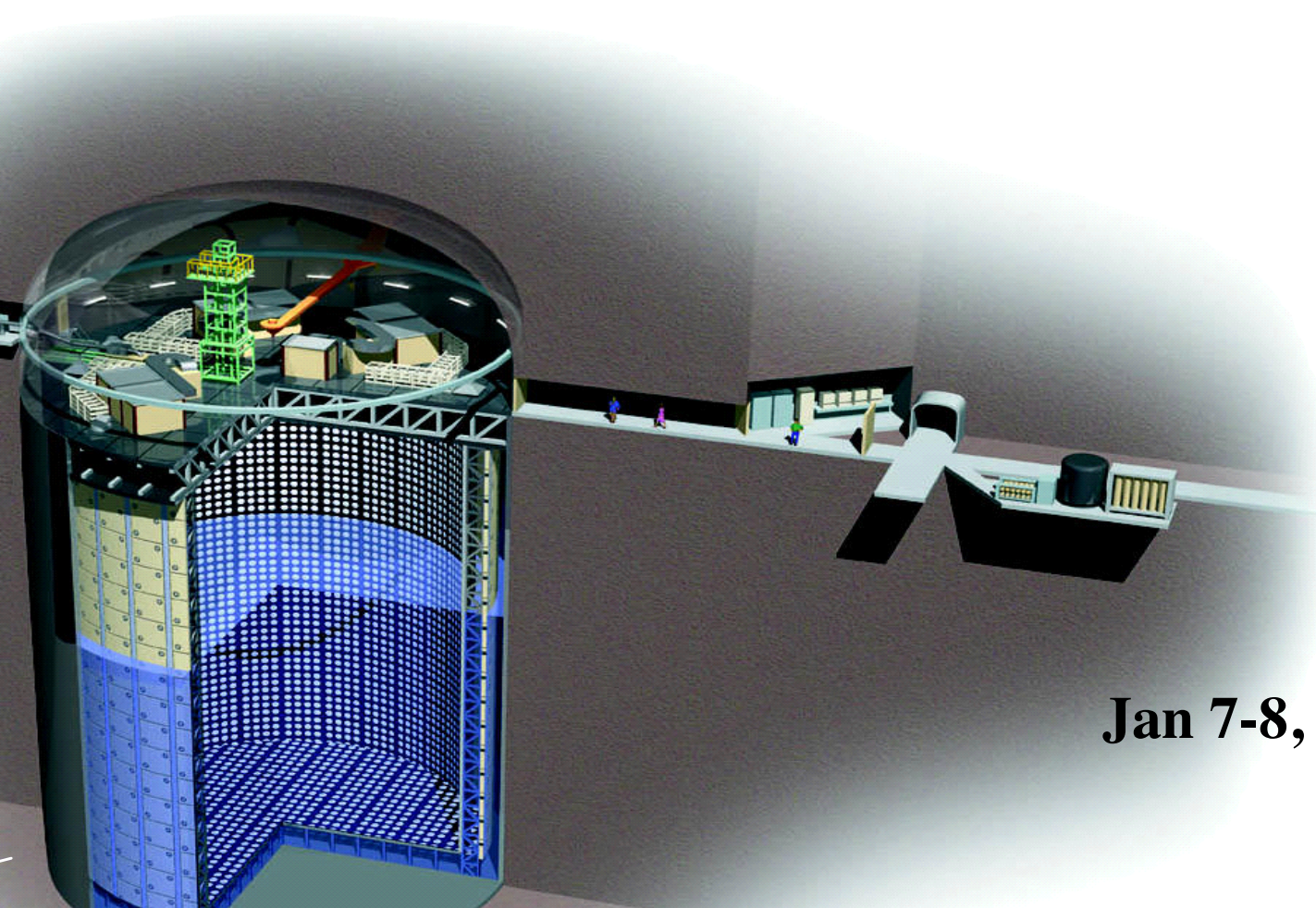
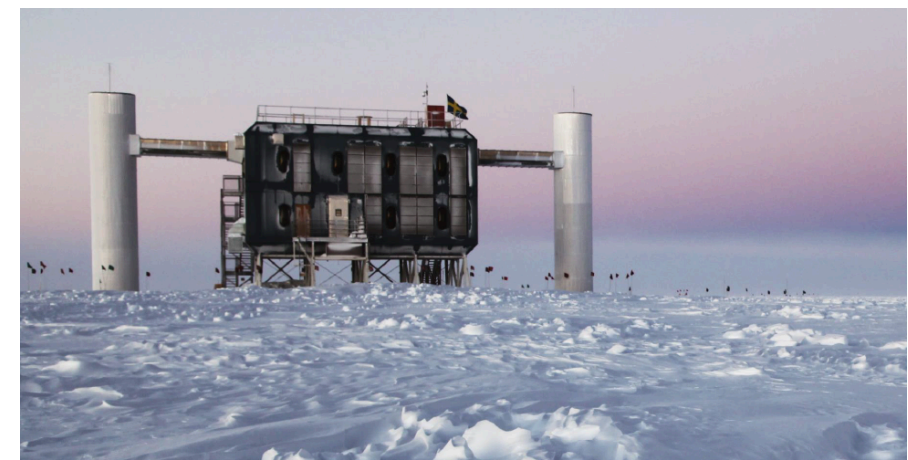
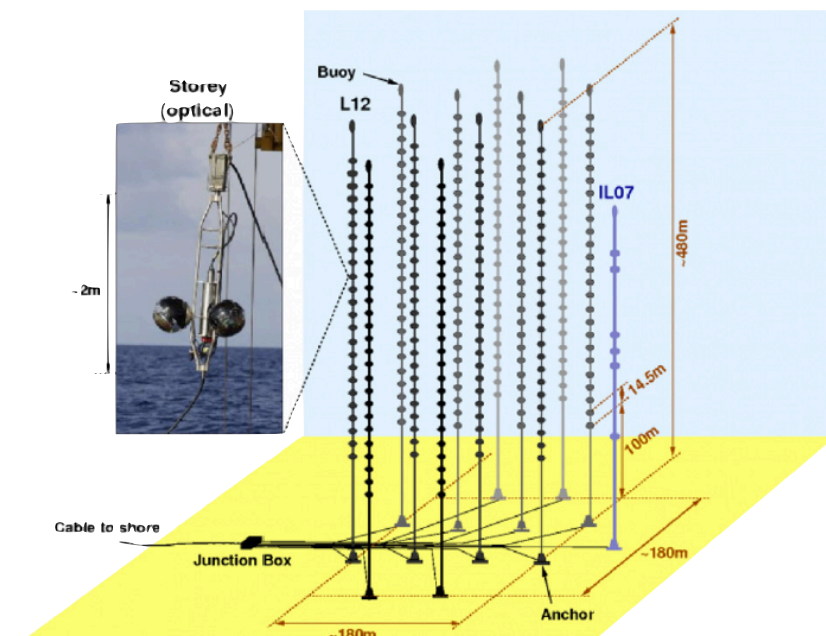


1st Neutrino Oscillation Tomography Workshop



Jan 7-8, 2016





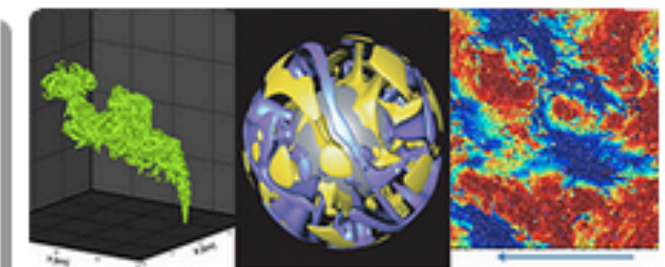
Overview of ERI



Our People



International Research Promotion



Joint Usage · Joint Research

What's new

Announcement

Symposium

Awards

Announcement 2016/1/4

ERI will host students of the Global Science Graduate Course (GSGC) [Deadline: Jan 10, 2016]

Awards 2015/12/17

Prof/Director Kazushige Obara selected as a lecturer for 2015 Gutenberg Lecture at AGU fall meeting

Announcement 2015/11/26

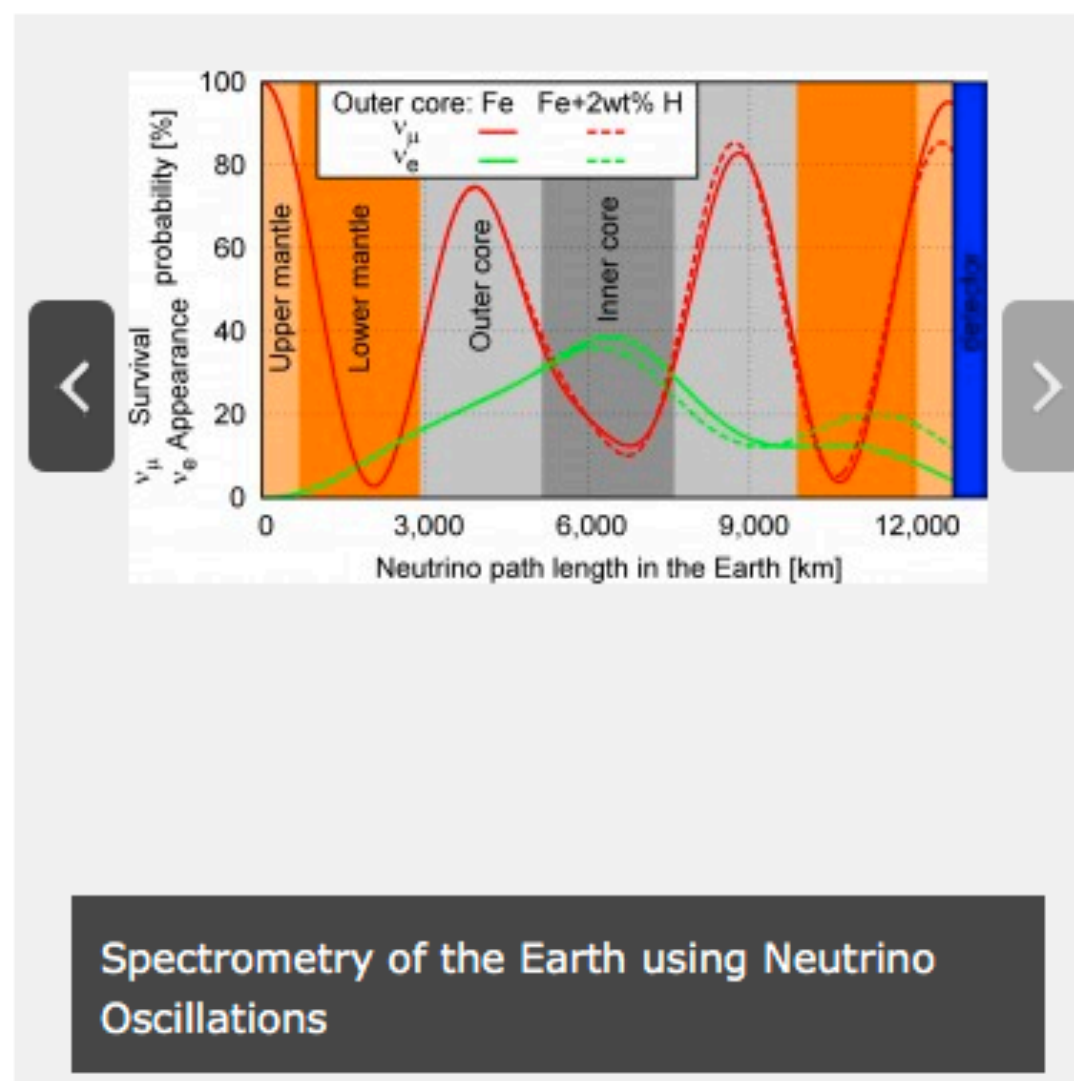
Special Exhibition "Muography: Perspective Drawing in the 21st Century" by INTERMEDIATHEQUE

Awards 2015/11/19

Prof. Hajime Shiobara and Prof. Masanao Shinohara received the Paper Award of Japan Society for Marine Surveys and Technology

Awards 2015/11/9

Prof. Yuichi Morita and Assistant Prof. Jun Oikawa et al. has won the Research



Schedule

<https://indico.cern.ch/event/442108/timetable/#20160108>

09:00	Registration Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 09:00 - 09:30
	welcome Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 09:30 - 09:45
10:00	Overview of neutrino science Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 09:45 - 10:45
	Coffee break Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 10:45 - 11:00
11:00	Overview of neutrino spectrometry Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 11:00 - 12:00
12:00	Lunch break Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 12:00 - 13:30
13:00	Recent progress of history, structure, chemical composition of deep Earth I Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 13:30 - 15:30
14:00	Coffee break : Coffee break Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 15:30 - 16:00
15:00	Recent progress of history, structure, chemical composition of deep Earth II Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 16:00 - 17:30
16:00	
17:00	
18:00	Dinner (500yen/person) Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 18:00 - 20:00
19:00	
20:00	

	Registration Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 08:30 - 09:00
09:00	Large Neutrino Telescope experiments, recent progress and application to geoscience I Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 09:00 - 11:00
10:00	
11:00	Coffee break Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 11:00 - 11:30
	Large Neutrino Telescope experiments, recent progress and application to geoscience II Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 11:30 - 12:30
12:00	
	Lunch break Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 12:30 - 14:00
13:00	
14:00	Discussion I - How neutrino science can contribute Geochemistry? Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 14:00 - 15:30
15:00	Coffee break Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 15:30 - 16:00
16:00	Discussion II Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 16:00 - 17:00
17:00	Workshop closure Building 2, 2F, 2nd lecture room, Earthquake Research Institute, the University of Tokyo 17:00 - 17:30

We would like to post materials as soon as possible

Please provide your talk to us, by uploading it or on a memory stick

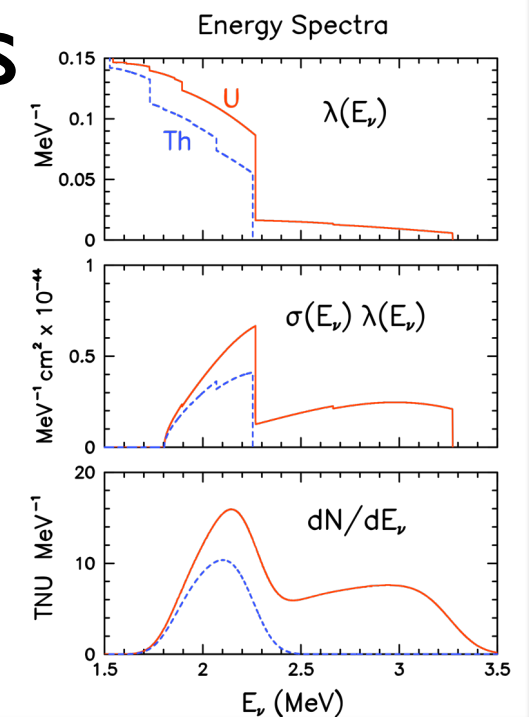
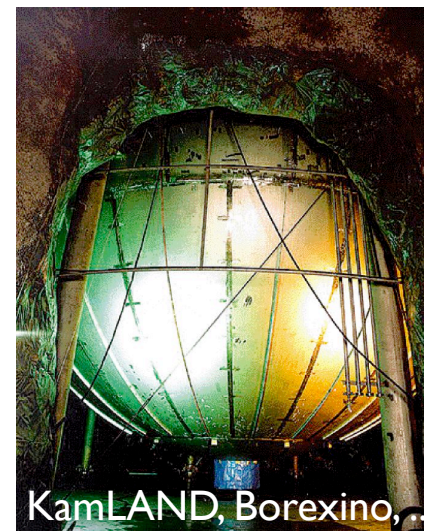
- Bring together neutrino science and Earth science
 - Many potentially interesting benefits, but we need to learn how to communicate
- How neutrinos benefit Earth science ?
 - Review existing ways
 - Brainstorm new ideas
- How Earth science benefits neutrino physics

Motivation (Particle Physics \Rightarrow Geo-science)

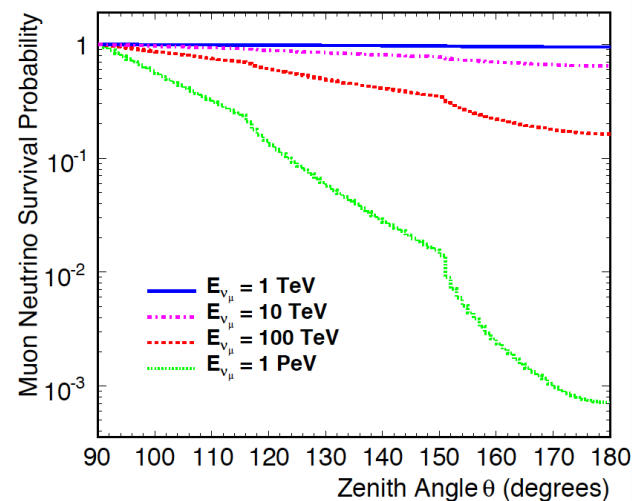
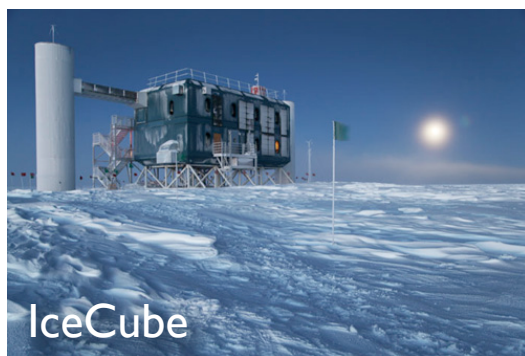
- What can neutrino detectors do for Solid Earth Science ?
 - **Muon Radiography**
 - Atm. airshower **muon absorption**
 - **Geo-neutrinos**
 - Low-energy neutrino detection from **nuclear decays**
 - **Neutrino absorption tomography**
 - Atm. air shower high-energy **neutrino absorption**
 - **Neutrino oscillation tomography**
 - Atm. air shower **neutrino oscillations**

Geo-neutrinos

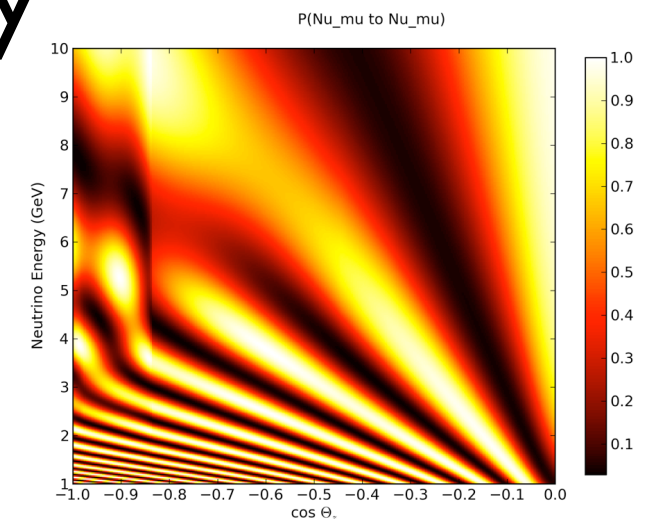
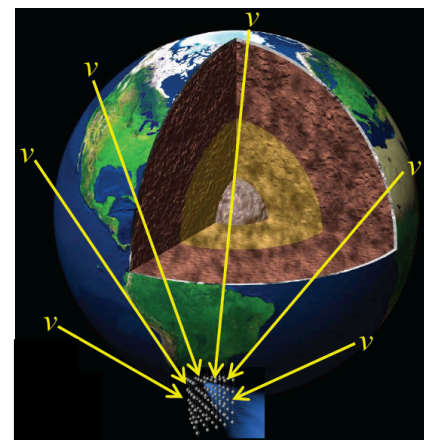
U and Th geo- ν



Neutrino absorption tomography



Neutrino oscillation tomography



Discussion Topics

- What can Earth Science do for neutrino physics ?
 - Particle physics is precision physics
 - need uncertainty on PREM and composition
- How can neutrinos most effectively be used for Earth science ?
- How can we combine high pressure experiments with neutrino oscillation tomography ?

This workshop

- We like this workshop to be interactive
 - Ask questions
- We have allocate plenty of time for discussions,
 - Short discussions during talks, but take longer discussion to dedicated discussion session
 - Feel free to propose topics
- We invited participants from different fields and with different backgrounds (~one expert from each area)
 - Be curious and open minded

- We hope many new idea's and collaborations will come out of this workshop
- If you write a paper based on discussions you had here please acknowledge this workshop

- How to connect to the internet:
- Any questions ?
 - Please ask: Kotoyo Hoshina, Akimichi Taketa, and Carsten Rott

Thanks !
Let's get started !