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JpGU–AGU Joint Meeting 2017

Highlights

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JpGU–AGU Joint Meeting 2017
May 20–25
Makuhari Messe, Chiba, Japan

JpGU introduces researches highly acknowledged both scientifically and socially.
These abstracts were selected out of 5600 submitted abstracts for the meeting.

Meeting Information:

http://www.jpgu.org/meeting_e2017/index.htm

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Scientific Sessions

[Session Language]

Both Japanese and English are the official languages of the meeting.

Each session has a language format which indicates the language used in the session, so called “session language”. The format is shown in two alphabet code.

EE: All (slides/posters & oral presentations) English.

EJ: Slides and posters in English. Oral presentations in English or Japanese (presenter's choice).

JJ: Slides/Posters and oral presentations in Japanese and/or English (presenter's choice).

[Poster Presentation]

The date and time of poster presentation is the Core Time.

Presenters should be at their posters during this period.

[Abstracts]

Abstract PDF is available online.

https://confit.atlas.jp/guide/event/jpguagu2017/top

[Press Area]

Please use the press area located at Room 103 on the 1st floor of International Conference Hall for your convenience. Press area staff will be at the room to help you with any question.

Union Sessions

Union Session is a session that provides a cross-sectional topic from more than two scientific fields of geoscience to the audience.

Session ID	U-01
Session Title	[EE] Future of Scientific Publishing in Geosciences
Date and Time	May 23　9：30am-12：15pm　Room 102 (Oral) May 23　5:15- 6:30pm Exhibition Hall 7 (Poster)
Convener	Hodaka Kawahata, Hirokuni Oda
Invited Authors	Rachel Burley, Xenia van Edig, Nobuko Miyairi, Brooks Hanson, Kenji Satake, Yasuo Ogawa, Yasufumi Iryu, Hodaka Kawahata

Session ID	U-02
Session Title	[EE] JpGU-AGU great debate
Date and Time	May 23 1:45-3:15pm Room 101 (Oral)
Convener	Huixin Liu, Tetsuo Irifune, Denis-Didier Rousseau
Moderator	Gaku Kimura
Panelist	Teruyuki Nakajima, Thorsten Kiefer, Erwan Monier, Naoshi Hirata

Session ID	U-03
Session Title	[EE] Discoveries from Subseafloor Sampling and Monitoring using Scientific Ocean Drilling
Date and Time	May 22, 9:00am-12:15pm, Convention Hall B (Oral) May 22, 5:15- 6:30pm Exhibition Hall 7 (Poster)
Convener	Kiyoshi Suyehiro, James A Austin, Keir Becker, Masahimi Murayama
Invited Authors	Beth Christensen, Henry Dick, Patrick Fulton, Fumio Inagaki, Gaku Kimura, Katsuyoshi Michibayashi, Heiko Pälike, Mark Reagan, Demian Safter, Laura Wallace, Ron I. Hackney

Session ID	U-04
Session Title	[EJ] How JpGU will manage environment and disaster?
Date and Time	May 25 10:45am-12:15pm, Convention Hall B (Oral)
Convener	Koji Okumura, Daisaku Kawabata, Hidetsugu Yoshida
Invited Authors	Yoshinobu Tanaka, Takashi Azuma, Koji Okumura

Session ID	U-05
Session Title	[EJ] Innovative research at the intersection of geoscience and health science
Date and Time	May 21, 10:45am-12:15pm, Room 101 (Oral)
Convener	Christine McEntee, Fumiko Kasuga, Geoffrey S Plumlee
Invited Authors	-

Session ID	U-06
Session Title	[JJ] Future of earth and planetary science (7): basic research fund system of ATLA, Ministry of Defense
Date and Time	May 20, 1:45-3:15pm, Room 103 (Oral)
Convener	Shuhei Okubo, Hodaka Kawahata, Ryoichi Fujii, Eiichi Tajika
Invited Authors	Akio Komorida, Kimio Hanawa, Tadao Nishiyama, Motoshi Shinozaki, Shuhei Okubo, Ryoichi Fujii

Presentation Number	PPS01-03
Time and Place	May 23　9：30-9：45am　Room 102
Session Title	P-PS01 [EE] Outer Solar System Exploration Today, and Tomorrow
Name of Presenter	Tomoki Kimura
Affiliation of Presenter	Nishina-Center for Accelerator Based Science, RIKEN
Presentation Title	Auroral explosion at Jupiter observed by the Hisaki satellite and Hubble Space Telescope during approaching phase of the Juno spacecraft
Summary of Presentation	In May 2016, we made a large observing program for Jupiter with the Hisaki satellite and Hubble Space Telescope when Juno explorer was in approach phase to Jupiter. We found a bursty auroral brightening which expanded from high to low latitudes at polar region. Simultaneously Juno found a solar wind shock structure was arriving at Jupiter. Volcanoes at Io were also active in this period. We interpret that energy in plasma stored in the space far from Jupiter was released by the solar wind shock arrival, transported to vicinity of Jupiter, and dissipated via the auroral brightening.
Scientific Impact	Transport of energy and mass in radial direction around strongly magnetized rotators like Jupiter, which are more strongly magnetized and rapidly rotating than Earth, has long been controversial because the space around the magnetic rotators are dominated by azimuthal flow. However, this study newly indicated that the plasma energy is stored at the far end from Jupiter, released, and transported radially inward, and finally dissipated as aurora at Jupiter's polar region. This demonstrates the radial transport of energy that has been controversial. This process is presumably universal for other magnetic rotators: e.g., neutron stars.
Social Impact	Planets and their satellites are precious habitable zones for life in the universe. At Jupiter, subsurface oceans at icy satellites, Ganymede and Europa, are potentially habitable zones. This study uncovered energy release and transport in space environment that surrounds the habitable zones at the icy satellites. In future, possible environmental impacts of the uncovered energy on the icy satellites will be investigated by our study. We can deepen our understanding on extra-terrestrial habitable zones and update our view of life in the universe.
Published as a paper before	T. Kimura, J. D. Nichols, R. L. Gray, C. Tao, G. Murakami, A. Yamazaki, S. V. Badman, F. Tsuchiya, K. Yoshioka, H. Kita, D. Grodent, G. Clark, I. Yoshikawa, and M. Fujimoto (2017), Transient brightening of Jupiter's aurora observed by the Hisaki satellite and Hubble Space Telescope during approach phase of the Juno spacecraft, Geophysical Research Letters, Juno Special Issue: early results, under review, 2017GL072912.

Presentation Number	PPS02-14
Time and Place	May 21　2：00-2：15pm　Room 103
Session Title	P-PS02 [EE] Small Bodies: Exploration of the Asteroid Belt and the Solar System at Large (eleonora ammannito)
Name of Presenter	Christopher T Russell
Affiliation of Presenter	University of California Los Angeles
Presentation Title	Dawn@Ceres:Evidence for a Once Frozen Ocean World
Summary of Presentation	The Dawn spacecraft has been in orbit about the Dwarf Planet Ceres for over two years and has discovered a wet world with a transient atmosphere cryovolcanoes, ice on the surface and evidence for internal chemical processes. The presence of water and organic molecules qualify this body as a habitable world. It low gravity and closeness to Earth make it an attractive candidate for future landed exploration.
Scientific Impact	The Dawn results from first Vesta and now Ceres has altered our understanding of the major asteroids and their role in solar system evolution. We now know that these bodies can actively incubate chemicals in their interiors and are not simple inert witnes to solar system evolution.
Social Impact	This exploration has changed our understanding of the evolution of the solar system and the possible origin(s) of life.

Presentation Number	PPS08-04
Time and Place	May 20　9：45-10：00am　Room 102
Session Title	P-PS08 [JJ] Lunar science and exploration
Name of Presenter	Kentaro Terada
Affiliation of Presenter	Department of Earth and Space Science, Graduate School of Science, Osaka University
Presentation Title	KAGUYA observation of terrestrial oxygen transported to the Moon
Summary of Presentation	It has been considered that oxygen isotopic composition of lunar soil's surface consists of intrinsic lunar component, ^{16}O-rich component originated from Solar wind, and ^{16}O-poor component of which origin is unknown. On the other hand, it is known that the ozone layer on the Earth shows ^{16}O-poor composition. In order to prove that terrestrial oxygen are transported to the Moon, we investigated the plasma data obtained by a lunar orbiter, Kaguya, and found that the significant numbers of1-10 keV O+ ions reach to the Moon only when the Moon across the Earth's plasma sheet.
Scientific Impact	We firstly revealed that the Earth-Moon system has been evolving not only physically but also chemically over billion years, bringing us a paradigm-shift idea. In addition, an observational link between terrestrial ozone layer and lunar soil has made an impact on various research fields beyond the exiting societies/associations. The possibility that the ancient Earth's atmosphere of billions of years ago may be preserved on the present-day lunar surface is also worthy of remark.
Social Impact	The Moon is the most friendly celestial body for the human being. So far, it is well known that the big moon physically stabilizes the earth's environment and makes it suitable for the life. Our discovery that the consequent biogenic oxygen formed by photosynthesis escapes from the Earth and affects the lunar surface composition via the energetic Solar wind, might bring the paradigm shift to not only researchers but also the ordinary people.
Published as a paper before	Terada et al. (2017) Nature Astronomy 1, Article number: 0026

Presentation Number	PEM11-18
Time and Place	May 24　2：25-2：45pm　Room A01
Session Title	P-EM11 [EE] Mesosphere-Thermosphere-Ionosphere Coupling in the Earth's Atmosphere
Name of Presenter	Huixin Liu
Affiliation of Presenter	Earth and Planetary Science Division, Kyushu University SERC, Kyushu University
Presentation Title	Response of diurnal tides to ENSO in the MLT region: a 21-year reanalysis GAIA model simulation result
Summary of Presentation	ENSO is known to affect global climate. But its effect does not stop there. Using 46 years of satellite observations, we find ENSO fingerprint in the thermosphere at 400 km altitude. Using atmosphere-ionosphere coupled model simulation, we find the agent for this teleconnection is atmospheric tides generated in the troposphere.
Scientific Impact	This work discovers the ENSO signature in the thermosphere and opens a new aspect for the connection between the lower and upper atmosphere regimes on Earth.
Social Impact	The ENSO impact on the upper atmosphere and its physical processes revealed in this study is highly important for space weather prediction.
Published as a paper before	Huixin Liu, Earth Planet and Space, Frontier Letter, 2016 Huixin Liu, Y. Sun, Y. Miyoshi, H. Jin., Journal of Geophysics Research, 2017, accepted

Presentation Number	PEM12-P20
Time and Place	May 23　3：30-6：30pm Place: Exhibition Hall 7（Poster）
Session Title	P-EM12 [EE] Space Weather, Space Climate, VarSITI
Name of Presenter	Hiroko Miyahara
Affiliation of Presenter	College of Art and Design, Musashino Art University
Presentation Title	Solar 27-day rotational period detected in a wide-area lightning activity in Japan
Summary of Presentation	We analysed lightning data in Japan for AD1989-2015 to detect the 27-day solar rotational period in wide-area lightning activity. We found that there is a significant signal of solar rotational period in the lightning activity covering more than 15 prefectures at around the maxima of solar decadal cycle. It is also found that the number of wide-area lightning event becomes larger at solar cycle maxima. It was suggested that the signal of 27-day lightning period migrates from southwest to northeast.
Scientific Impact	Correlations between solar cyclic activity and climate variations have been detected over a wide range of time scales (monthly to millennial), although the mechanism for these effects is currently uncertain. The detailed analyses of 27-day solar rotational period in cloud and lightning activities may help in untangling the process of solar influence on weather and climate.
Social Impact	It was suggested that the summertime lightning activity in Japan is affected by solar activity. Periodic behavior and the long-term trend depend on solar activity. It can contribute to the improvement of the accuracy of long-term prediction of weather.
Published as a paper before	Miyahara H., Higuchi C., Terasawa T., Kataoka R., Sato M., Takahashi Y., Solar 27-day rotational period detected in a wide-area lightning activity in Japan, ANGEO Communicates, 2017 (accepted).

Presentation Number	AAS04-01
Time and Place	May 23　9：00-9：15am　Room 301B
Session Title	A-AS04 [EE] Global Carbon Cycle Observation and Analysis
Name of Presenter	David Crisp
Affiliation of Presenter	Jet Propulsion Laboratory
Presentation Title	GOSAT and OCO-2: New tools for studying interactions between the carbon cycle and climate
Summary of Presentation	Atmospheric carbon dioxide (CO2) estimates from the Japanese Greenhouse gases Observing SATellite (GOSAT) and NASA Orbiting Carbon Observatory-2 (OCO-2) have been cross calibrated and cross validated against internationally recognized standards. These two data sets were then combined to study the response of the topical carbon cycle to the 2015-2016 El Niño with an unprecedented combination of spatial and temporal resolution.
Scientific Impact	Enhanced CO2 emissions were seen over tropical Africa, South America and tropical Asia during this intense El Niño event, but high temperatures, drought, and fires produced different impacts in each region. This result has important implications for both the predictability of carbon-climate feedbacks and future efforts to manage ecosystem carbon emissions. Combining the 8-year GOSAT CO2 record with the dense, high precision sampling of the shorter OCO-2 CO2 record was critical for this analysis.
Social Impact	An improved understanding of the sources emitting CO2 and other greenhouse gases into the atmosphere and the sinks that absorb these gases at the surface is critical for managing these gases. Only space-based measurements can provide the spatial resolution and coverage needed in some parts of the world. The combined use of GOSAT and OCO-2 data in this experiment provides a pathfinder for future space based contributions to a global carbon monitoring system.

Presentation Number	AAS06-11
Time and Place	May 20　2：45-3：00pm　Room 101
Session Title	A-AS06 [EE] Advances in Tropical Cyclone Research: Past, Present, and Future
Name of Presenter	Toru Adachi
Affiliation of Presenter	Meteorological Satellite and Observation System Research Department, Meteorological Research Institute
Presentation Title	Three-dimensional structure of Typhoon Mindulle (2016) observed by phased array radar
Summary of Presentation	We succeeded in observing Typhoon Mindulle (2016) using a phased array radar, which is a state-of-the-art technology. We found that convection cells in the inner region of Mindulle were rapidly intensified as strongly circulating winds significantly contracted after the landfall.
Scientific Impact	We found a significant change of the three-dimensional structure of typhoon in a short time scale. The results obtained would make us to uncover the physical mechanism occurring in the inner region of typhoon, which is a driver of overall structure.
Social Impact	Typhoons frequently hit our country and cause severe damages. The results obtained here would greatly improve our understanding of typhoon and would lead to a development of future monitoring and forecasting technologies to reduce severe weather risks associated with typhoon.

Presentation Number	AAS07-02
Time and Place	May 22　9：15-9：30am　Room 101
Session Title	A-AS07 [EE] Aerosol impacts on air quality and climate
Name of Presenter	William K-M Lau
Affiliation of Presenter	University of Maryland College Park
Presentation Title	Effect of snow-darkening by absorbing aerosols on hydroclimate and heat waves over Eurasia
Summary of Presentation	Deposition of dust and black carbon on snow surface darkens snow surface, increases absorption of solar radiation, accelerates melting of snow cover and warms the land in spring in Eurasia. Increased evaporation of the land to dry up, and intensify the warming, leading to more frequent occurrence of heat waves in Eurasia, and subsequent increase in summer monsoon rainfall over Asia.
Scientific Impact	First to show definitive roles of land-atmosphere interaction, via a wet-first-dry-later (WFDL) hydro-climate feedback, linking early spring snowmelt caused by aerosol snow-darkening effects over the Eurasia continent, to increased frequency of occur ence of heatwaves over western Europe, but cooler and wetter Asia during boreal summer.
Social Impact	Aerosol snow-darkening effects can substantially amplify the warming of the land and atmosphere over Europe and Asia by greenhouse warming, increasing risks of extreme heat waves and, wildfires in extratropical continental regions in Eurasia, as well as heavy rain and flooding in Asian monsoon regions, with enormous adverse impacts on socio-economics, affecting more than 75% of the world population.

Presentation Number	AHW34-P11
Presentation Time, Place of Presentation	May 22　3：30-6：30pm Place: Exhibition Hall 7（Poster）
Session Title	A-HW34 [EJ] Hydrological Cycle and Water Environment
Name of Presenter	Osamu Nagafuchi
Affiliation of Presenter	Fukuoka Institute of Technology
Presentation Title	Mercury speciation in fish muscles from Lake Biwa and human health risk assessment
Summary of Presentation	Fish are exposed to metals via both aqueous and dietary routes. Some metals such as mercury (Hg) come mainly from dietary sources, with accumulation from aqueous routes providing a small contribution to the total Hg burden. Many studies have been conducted to understand the Hg accumulation focused on marine fish, however, only a few study has been conducted in fresh water. People who live near lake may also eat fresh water fish as well as marine fish. Therefore, it is important to understand the mercury concentration in fresh water fish as well as marine water fish. In our study, mercury concentration and other metals in fish was measured caught from Lake Biwa, the largest lake in Japan. Result from mercury concentration in fish, we estimated the human health risk caused from fish intake. Sampling was conducted during May 2011 to May 2012 sampling campaign. 82 fish sample, plankton sample, and water sample were sampled in Lake Biwa. Mercury concentration in fish muscle tends to be high as the trophic level going up.
Scientific Impact	Mercury concentration level in fresh water fish which is less observed than marine fish were determined in Lake Biwa, Japan. Result from the nitrogen isotope ratio and oxygen isotope analysis, mercury concentration is tending to be higher in upper category of ecological pyramid than lower ones. Mercury concentration in Silurus biwaensis which belongs to the highest category of ecological pyramid is exceed the tentative criterion measure of Japan (0.4 ppm). Result from the screening risk assessment of Silurus biwaensis intake shows that the “risk concern” level.
Social Impact	Mercury concentration in fresh water fish level in Lake Biwa where is non-contaminated mercury lake were observed. Also, the mercury pass way to the fresh water fish were analyzed with relationship of ecological pyramid. The suspicion risk level of lower category of ecological pyramid in fresh water fish which is used for specialty good intake is very low, however, this study alarms mercury contamination in freshwater fish.

Presentation Number	MAG34-07,08
Time and Place	May 25　10：45-11：15am　Convention Hall A
Session Title	M-AG34 [EJ] Dynamics of radionuclides emitted from Fukuchima Dai-ichi Nuclear Power Plant in the environment
Name of Presenter	Kazuyuki Kita
Affiliation of Presenter	Faculty of Science, Ibaraki University
Presentation Title	Investigation of soil radionuclude near the Fukushima Dai-ichi Nuclear Power Plant 5-year after the accident by JpGU-JNRS team,Radioactivity in soil from near the Fukushima Dai-ichi Nuclear Power Plant at five years after the accident
Summary of Presentation	A large-scale soil sampling project for radionuclides from the Fukushima Daiichi Nuclear Power Plant accident was conducted in 2016 by a research group on the Japan Geoscience Union and the Japan Society of Nuclear and Radiochemical Sciences to understand to understand the current contamination status and transition process of radioactive cesium in soil during 5 years since the accident. 176 researcher of total were work to measure the air dose rate and collect soil samples at 105 locations near the Fukushima Dai-ichi nuclear power plant. The outline of the project as well as preliminary results will be reported.
Scientific Impact	Extensive in-situ soil sampling project, which had not been conducted since 2011, provides quite valuable samples for understanding variation of radionuclides in soil, concerning their chemical and physical form and horizontal/vertical distribution, during 5 years after FDNPP accident.
Social Impact	Major part of radionuclides emitted from the Fukushima Daiichi Nuclear Power Plant accidenthas been remined in surface soil. In the present research project, variation of chemical/physical form of radionuclides in soil as well as that in their horizontal/vertical distribution can be understood to improve accuracy in assessment of long-term social risks of them. It will be also provide valuable knowledge such as depth distribution of radiocesium for the decontamination in the heavily contaminated areas.

Presentation Number	HCG36-P02
Time and Place	May 20　3：30-6：30pm Place: Exhibition Hall 7（Poster）
Session Title	H-CG36 [JJ] Coastal wetlands: geomorphologic, biologic and anthropogenic processes
Name of Presenter	Kiyoshi Fujimoto
Affiliation of Presenter	Nanzan University
Presentation Title	Preliminary report on progressing influences of rapid sea-level rise corresponding to mangrove communities in the mangrove peat depositional area and near future prediction
Summary of Presentation	Sea-level rise induced by global warming is surely progressing. We will urgently report the actual condition of surface erosion with rapid sea-level rise on main mangrove communities in mangrove peat depositional area on Pohnpei Island, Micronesia. The situation of surface erosion is different depending on the community types and the distance from the seaward forest edge. Dieback, fallen trees and decrease of growth rate possibly appear in the communities which sever surface erosion is progressing.
Scientific Impact	The influences of sea-level rise to mangrove habitat depend on the relative relationship between depositional rate and sea-level rise rate. The depositional rate in mangrove peat depositional area is possibly different depending on the stage of vegetation succession. The scientific significance of this study is to clarify the actual condition of surface erosion corresponding to mangrove communities and near future prediction.
Social Impact	This study will raise anew an alert over sea-level rise and offer the scientific evidence for preservation of mangrove forests and mangrove afforestation, which will contribute to create methods of coastal environment preservation in tropical and subtropical region under sea-level rise condition.

Presentation Number	HDS12-07
Time and Place	May 25　10：45-11：00am　Room 105
Session Title	H-DS12 [EE] Tsunami disaster mitigation
Name of Presenter	Anawat Suppasri
Affiliation of Presenter	International Research Institute of Disaster Science, Tohoku University
Presentation Title	A global assessment of tsunami hazards over the last 400 years
Summary of Presentation	This presentation is our contribution towards World Tsunami Awareness Day, which was proposed by the United Nations (UN) in 2015. We conducted a global tsunami hazard assessment for local regions, including low tsunami risk areas, based on a 400-year data base which allows insight on potential future tsunamis based on the seismic gap.
Scientific Impact	By comparing data of maximum amplitude simulations from tsunami that occurred over the last 40-50 years (1970-2016) to those that took place over a period of 400-years, it's clear that what are now considered to be tsunami risk regions, differs from the historical evidence. While the most damaging tsunami between 1970-2016 occurred in the Indian Ocean and East Japan regions, prior to this, dating back to 1600 A.D., tsunamis were shown to have occurred all over the world, especially along the Pacific Rim.
Social Impact	This observation shows the importance of assessing the history of natural disasters, as well as the importance of education on the low-frequency, but ongoing danger of tsunami. We wish that as a part of the World Tsunami Awareness Day related activities, our results and findings will increase tsunami awareness at the global scale, especially in comparatively low tsunami risk areas, and reduce human loss from future tsunamis.
Published as a paper before	Imamura, F., Suppasri, A., Latcharote, P. and Otake, T. (2016) A Global Assessment of Tsunami Hazards Over the Last 400 Years, International Research Institute of Disaster Science (IRIDeS), Tohoku University. http://irides.tohoku.ac.jp/project/global_ass

Presentation Number	HDS16-P01
Time and Place	May 24　3：30-6：30pm Place: Exhibition Hall 7（Poster）
Session Title	H-DS16 [JJ] Tsunami and Tsunami Forecast
Name of Presenter	Tsunehisa KIMURA
Affiliation of Presenter	Schlumberger
Presentation Title	Potential for real-time Tsunami Monitoring using DAS Technology
Summary of Presentation	DAS (Distributed Acoustic Sensing) technology has been used for pipeline monitoring and seismic signal recording since 2011 in Oil & Gas business. In this time we successfully recorded 1-2 m height of tidal waves using submarine fiber cable over the distance of 15km fairly clearly. This is the first ever recorded wave motions using DAS technology. Therefore, the hDVS (heterodyne Distributed Vibration Sensing) system used for experiments is potentially able to monitor the development of tsunami continuously from several tens of kilometers off the coast.
Scientific Impact	The measurement of the conventional tsunami sensors are point basis, while installation cost and environmental ratings of the conventional sensors limits the number and location of the sensor installations. It is not realistic to build a continuous tsunami monitoring system using conventional sensors. Using hDVS system which uses optical fiber as vibration sensor, it is potentially able to monitor the development of tsunami continuously from up to 50km off the coast using existing submarine fiber cable. During the wave monitoring experiments it was proved that wave velocity and wave height can be measured with accuracy.
Social Impact	When the Tohoku earthquake and tsunami in 2011 occurred, the expecting height of the tsunami wave when it reached the coast and the time of arrival were calculated based on the available data from limited number of tsunami sensors and the data from seismometers. There was an opinion that uncertainty of such information might lead delay or misplace of the evacuation for the affected people. Using hDVS system by monitoring the development of tsunami continuously from several tens of kilometers off the coast would trigger certain tsunami warning on time in addition to current tsunami warning system, it is believed that loss of human life would be minimized from upcoming big tsunami events.

Presentation Number	MIS09-P06
Time and Place	May 23　3：30-6：30pm Place: Exhibition Hall 7（Poster）
Session Title	M-IS09 [EJ] tsunami deposit
Name of Presenter	Yuichi Nishimura
Affiliation of Presenter	Graduate School of Science, Hokkaido University
Presentation Title	PRESERVATION AND DISAPPEARANCE OF THE 2011 TOHOKU-OKI TSUNAMI DEPOSIT ALONG THE MISAWA COAST, AOMORI PREFECTURE, NORTHERN JAPAN
Summary of Presentation	A coastal forest in Misawa City, Aomori Prefecture, is only place where tsunami deposits accompanied by the 2011 Tohoku tsunami are preserved under the natural environment. We reviewed this sediment five years after when it was covered with soil, and examined preservation and disappearance of the tsunami deposits relating to the social and natural environment. The remaining tsunami deposits are one of the disaster archives, and are valuable subjects that should be effectively and sustainably utilized not only in research but also in disaster prevention and education fields.
Scientific Impact	Tsunami deposit is an evidence to infer the history of the large thrust earthquakes, but there has been no opportunity to discuss the limit of its utilization. From the 2011 tsunami deposits left in Misawa city, we learned what information is kept and what is lose for last five years. It was also shown that the environment of the deposit site is particularly important for preservation of thin sediments which is a measure to know the tsunami inundation limit.
Social Impact	The tsunami deposit in Misawa city is a direct evidence for the 2011 tsunami run up. On the poster, I will exhibit a peel of the tsunami sediment. Field excursion for the local people and display of such peals in public facilities can be useful for promoting disaster prevention education. The coastal forest of Misawa City is also a place where the researchers can continue to study the tsunami trace under weathering, and it is highly likely to become a worldwide type-locality for identifying paleo-tsunami deposits.

Presentation Number	MZZ42-P05
Time and Place	May 21　1：45-3：15pm，5：15-6：30pm Place: International Exhibition Hall 7（Poster）
Session Title	M-ZZ42 [JJ] Geoscience Studies: historical, philosophical and STS studies
Name of Presenter	Ishibashi Takashi
Affiliation of Presenter	Masutomi Museum of Geocience
Presentation Title	Research on Ore and Mineral Specimens in the Edo Period, from Iwami Ginzan Silver Mine, Japan
Summary of Presentation	Ore and Mineral specimens of the Edo period, from the Iwami Ginzan Silver Mine in World Heritage were discovered. The sample was 58 points, silver mineral including native silver was confirmed. Ore mined in the Edo period is very valuable because only a small number of ores are present. Each ore specimen also had a record of the name of the ore in the Edo period, the sampling point, the date and time, and so on. Chemical analyzes of the discovered ore revealed the mineral species that make up the silver ore.
Scientific Impact	Regarding the ore in the Edo period from the Iwami Ginzan Silver Mine there was only information described mainly in ancient documents etc. so far, but the real thing was analyzed this time and the ore at that time was concretely clarified. The Ore specimens of this study are extremely rare cases accompanied by ancient document information on various kinds of ore specimens, so it has high academic value and cultural asset value as historical materials.
Social Impact	Until now, information on silver ore mined in the Edo period was poor. Publication of the information obtained in this research seems to be useful for deepening our understanding in the fields of mining technology history, social history, mineralogy and so on. In the future, we will further investigate the ore specimens of this research, as ore specimens with historical value, we will conserve and utilize them as cultural properties etc in the future and contribute to public benefit.

Presentation Number	SSS04-09
Time and Place	May 24　11：15-11:30am　Room A10
Session Title	S-SS04 [EE] Subduction zone dynamics from regular earthquakes through slow earthquakes to creep
Name of Presenter	Masataka Kinoshita
Affiliation of Presenter	Earthquake Research Institute, University of Tokyo
Presentation Title	Renovated 3D image of Nankai accretionary wedge and shallow seismogenic zone off Kumano through reprocessing of 3D seismic data
Summary of Presentation	For the finer imaging and precise depth estimation of Nankai Trough seismogenic zone off Kumano, we reprocessed the 3D seismic image, which was obtained in 2006, by using today's advanced technology. Improved images in the shallow accretionary wedge reveal dynamic deformation features (e.g. branching of splay faults, thrusting of the lower Shikoku Basin formation, BSRs). In deeper portion, we clearly identified a 3D geometrical undulation of the megasplay fault as well as a couple of landward dipping reflectors in this high-Vp region, in a good contrast with a region of no remarkable reflectors shallower than 3000m below seafloor.
Scientific Impact・	Our reprocessed 3D seismic image around the Nankai seismogenic zone off Kumano should contribute to improve the understanding of the feature of Nankai seismogenic zone, through integrating with borehole data (logging and monitoring).
Social Impact・	Nankai Trough is anticipated to cause devastating great earthquake and tsunami in the next few decades. Our reprocessed 3D seismic image around the Nankai seismogenic zone should contribute to assess the risk of these earthquakes more accurately.

Presentation Number	SSS04-P15
Time and Place	May 24　3：30-6：30 Place: Exhibition Hall 7（Poster）
Session Title	S-SS04 [EE] Subduction zone dynamics from regular earthquakes through slow earthquakes to creep
Name of Presenter	Kazuya Shiraishi
Affiliation of Presenter	JAMSTEC
Presentation Title	Improved 3D seismic image in Nankai Trough off Kumano
Summary of Presentation	For the finer imaging and precise depth estimation of Nankai Trough seismogenic zone off Kumano, we reprocessed the 3D seismic image, which was obtained in 2006, by using today's advanced technology. Improved images in the shallow accretionary wedge reveal dynamic deformation features (e.g. branching of splay faults, thrusting of the lower Shikoku Basin formation, BSRs). In deeper portion, we clearly identified a 3D geometrical undulation of the megasplay fault as well as a couple of landward dipping reflectors in this high-Vp region, in a good contrast with a region of no remarkable reflectors shallower than 3000m below seafloor.
Scientific Impact	Our reprocessed 3D seismic image around the Nankai seismogenic zone off Kumano should contribute to improve the understanding of the feature of Nankai seismogenic zone, through integrating with borehole data (logging and monitoring).
Social Impact	Nankai Trough is anticipated to cause devastating great earthquake and tsunami in the next few decades. Our reprocessed 3D seismic image around the Nankai seismogenic zone should contribute to assess the risk of these earthquakes more accurately.

Presentation Number	SSS12-P01
Time and Place	May 23　3：30-6：30pm Place: Exhibition Hall 7（Poster）
Session Title	S-SS12 [EJ] Active faults and paleoseismology
Name of Presenter	Hisao Kondo
Affiliation of Presenter	Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology
Presentation Title	Occurrence probability and frequency of large (Mj ≧ 6.8) earthquakes on active faults in Japan
Summary of Presentation	We re-examined the frequency and occurrence probabilities of larger than Mj6.8 active fault earthquakes in the last 125 years. The occurrence of 22 earthquakes in the last 125 years yields the average recurrence interval of 5.7 years. Using the individual recurrence intervals from event to event, 4.6+-3.7 years is obtained for all damaging large earthquakes and 6.0+-5.5 years for active fault earthquakes. Under the assumption of Poisson process, we then calculated the earthquake probability within the next 5, 10 and 30 years over Japan. As a result, we obtained 72%, 92%, 100% probabilities for all damaging large earthquakes, and 62%, 86%, 99.7% for active fault earthquakes, respectively.
Scientific Impact	Previous studies had estimated the frequency of larger than Mj6.8 active fault earthquakes in Japan is approximately once in 20 years. However, our re-examination indicates almost double of frequency in the last 125 year. The data also shows distinct temporal clustering with extremely short recurrence intervals of 2.9+-1.5 years. The clustering is likely to be linked with occurrences of mega-thrust earthquakes along the subduction zones.
Social Impact	Our re-examination clearly indicates that the occurrence probability for the next large earthquake produced by active faults is extremely high. In general, the strong ground motion generated by active faults cause various kinds of seismic hazards. It is thus apparent that we need to continue to prepare the sudden occurrence of such destructive earthquakes. Furthermore, we should look for the chances to constrain which active faults are relatively most dangerous in order to effectively invest in focused researches and countermeasures.

Presentation Number	SIT26-P02
Time and Place	May 20　3：30-6：30 Place: Exhibition Hall 7（Poster）
Session Title	S-IT26 [EE] Fluid-mediated processes and properties near convergent plate boundaries
Name of Presenter	Takuo Shibutani
Affiliation of Presenter	Research Center for Earthquake Prediction, Disaster Prevention Research Institute, Kyoto University
Presentation Title	Characteristics of slab-derived fluids beneath Kii Peninsula, southwestern Japan inferred from seismic tomography
Summary of Presentation	In order to investigate behavior and nature of slab-derived fluids discharged from the Philippine Sea plate subducting beneath Kii Peninsula, southwestern Japan, we carried out linear array seismic observations, receiver function analyses and seismic tomography. We estimated the geometry of the slab and the seismic velocity structure beneath the Kii Peninsula, and discussed the behavior of the fluids with the distribution of low velocity anomalies. We are now understanding relations between the fluids and deep low frequency events and active micro seismicity beneath the northern Wakayama Prefecture.
Scientific Impact	We estimated the geometry of the slab and the seismic velocity structure beneath the Kii Peninsula with the best resolution and accuracy ever by adding more than a total of 100 seismic stations for as many as nine years in total. It was one of our new finding that the Moho discontinuity between the crust and the mantle in the island arc dips upward in the southeast direction above the Philippine Sea slab. The distribution of slab-derived fluids estimated from low velocity anomalies can explain the occurrence of the deep low frequency events and the active micro seismicity beneath the northern Wakayama Prefecture.
Social Impact	We successfully estimated with a great accuracy the distribution of fluids near the plate boundary beneath the Kii Peninsula which is a part of the source region of Nankai Trough megaqukaes, and the geometry of the slab and the seismic velocity structure beneath the Kii Peninsula where seismic waves propagate from the source to large urban areas such as Osaka and Kyoto. This can contribute largely to future developments in the prediction of earthquake occurrences and strong motions.

Presentation Number	MTT37-02
Time and Place	May 23　9：15-9：30am　Room 202
Session Title	M-TT37 [EE] Cryoseismology - a new proxy for detecting surface environmental variations of the Earth -
Name of Presenter	Evgeny A. Podolskiy
Affiliation of Presenter	Arctic Research Center, Hokkaido University
Presentation Title	Recurring LP-events within a tidewater greenlandic glacier
Summary of Presentation	In July 2015 and July 2016, we conducted 2 passive seismic experiments at Bowdoin Glacier, an iceberg calving glacier in Greenland. Using 5 - 8 station networks installed directly on ice or rock near the glacier, we observed thousands of long-period (LP) seismic events occurring every 10 min or less. Surprisingly, this type of seismic event is commonly observed at volcanic and geothermal sites.
Scientific Impact	The source mechanism of LP-events remains debated. On the one hand, it was proposed that LP events result from the resonance of fluid-filled cavities excited by fracture-opening. On the other hand, they are attributed to slow rupture combined with wave-propagation effects. Here, we analyze LP events and suggests that fluid-filled englacial cracking is the most likely source mechanism of LP events.
Social Impact	LP-events at volcanoes are used as eruption precursors. Confusion of glacial and volcanic signals can lead to the misinterpretation of events at glaciated volcanoes and subsequent unnecessary evacuation. Thus, understanding of LP event source-mechanisms is needed for volcanic hazard research purposes, and for studying difficult-to-observe basal motion and subglacial processes beneath glaciers.