

JKASP 2016

9th Biennial Workshop on Japan-Kamchatka-Alaska Subduction Processes

Understanding active subduction processes in North Pacific arcs

Geophysical Institute, University of Alaska, Fairbanks, Alaska

May 31 – June 3, 2016

SCIENTIFIC PROGRAM

MONDAY, MAY 30

On-site registration and ice-breaker

IARC lobby, 16:00-19:00

Hosts: Jeff Freymueller and Pavel Izbekov; registration: Lea Gardine

16:00 Registration opens

17:00 Ice-breaker starts

TUESDAY, MAY 31

On-site registration and morning coffee

REIC lobby, 07:00 – 08:00

07:00 On-site registration continues

07:30 Breakfast

PLENARY SESSION

Welcoming remarks

REIC 201, 08:00 – 08:40

08:00 Introduction: Jeff Freymueller

08:10 Welcome: Robert McCoy, Director of the Geophysical Institute

08:20 Welcoming remarks from John Eichelberger (UAF), Evgenii Gordeev (Institute of Volcanology and Seismology), and Minoru Kasahara (Hokkaido University)

Keynote Talk

REIC 201, 08:40 – 09:00

08:40 David W. Scholl, Stephen H. Kirby, and Roland Von Huene BASED ON GLOBAL OBSERVATIONS, TWO REASONS WHY THE ALEUTIAN-ALASKA SUBDUCTION ZONE IS PRONE TO RUPTURE IN GREAT (> Mw8.0) MEGATHRUST EARTHQUAKES

TECHNICAL SESSIONS

Seismology (Oral presentations)

REIC 201, 09:00 – 10:00

Chairs: Mike West and Matt Haney

09:00 Stephen R. McNutt, Glenn Thompson, Jochen Braunmiller, and Stephen Holtkamp PEAK

RATES AND LARGEST MAGNITUDE EVENTS IN EARTHQUAKE SWARMS FROM DIFFERENT TECTONIC SETTINGS

- 09:20 Hiroaki Takahashi, Mako Ohzono, Koji Minato, Noritoshi Okazaki, Takahiro Suzuki, Tetsuya Takahashi, Fujio Akita MAGMA, THERMAL STRUCTURE, STRAIN CONCENTRATION AND ACTIVE SEISMICITY IN KUSSHARO CALDERA, HOKKADIO, JAPAN
- 09:40 Nikolai Shapiro, Dmitry Droznin, Svetlana Droznina, Victor Chebrov, Evgeny Gordeev, William Frank THE REVEALING OF THE VOLCANIC ACTIVITY FOR KLYUCHEVSKAYA GROUP OF VOLCANOES FROM CONTINUOUS SEISMIC RECORDS
- 10:00 Coffee break

Seismology (Oral presentations), continued

REIC 201, 10:20 – 12:00

Chairs: Hiroaki Takahashi and John Lyons

- 10:20 Alexandra K. Farrell and Stephen R. McNutt SEISMIC ATTENUATION, TIME DELAYS AND RAYPATH BENDING OF TELESEISMS BENEATH CERRO UTURUNCU, BOLIVIA
- 10:40 Matthew M. Haney, Victor C. Tsai, Kevin M. Ward WIDESPREAD IMAGING OF THE LOWER CRUST, MOHO, AND UPPER MANTLE BENEATH ALASKA FROM RAYLEIGH WAVES
- 11:00 Stephen Holtkamp USING EARTHQUAKES TO PROBE SUBDUCTION MEGATHRUST BEHAVIOR: A LOOK AT EARTHQUAKE SWARMS AND REPEATING EARTHQUAKES IN ALASKA
- 11:20 Anna Skorkina, Alexander Gusev CORNER FREQUENCIES OF SOURCE SPECTRA OF MODERATE SUBDUCTION-ZONE EARTHQUAKES OBSERVED NEAR THE AVACHA BAY, KAMCHATKA
- 12:00 Lunch

Seismology (Oral presentations), continued

REIC 201, 13:00 – 14:40

Chairs: John Power and Hiroaki Takahashi

- 13:00 Mako Ohzono, Hiroaki Takahashi, Nikolay V. Shestakov, Guojie Meng, Mikhail. D. Gerasimenko ESTIMATION OF THE LONG-TERM EFFECT OF VISCOELASTIC RELAXATION INDUCED BY THE 2011 TOHOKU EARTHQUAKE AND OTHER INTERPLATE EARTHQUAKES AROUND NORTHEASTERN ASIA
- 13:20 John J. Lyons, Matthew M. Haney, Cynthia Werner, Peter Kelly, Matthew Patrick, Christoph Kern, and Frank Trusdell LONG PERIOD SEISMICITY AND VERY LONG PERIOD INFRASOUND DRIVEN BY SHALLOW MAGMATIC DEGASSING AT MOUNT PAGAN, MARIANA ISLANDS
- 13:40 Matthew M. Haney, Robin Matoza, David Fee, David F. Aldridge SEISMIC EQUIVALENTS OF INFRASONIC SCALING LAWS FOR VOLCANIC JETS AND ACOUSTIC MULTIPOLES
- 14:00 Cassandra M. Smith, Stephen R. McNutt, Glenn Thompson QUANTIFYING GROUND COUPLED AIR WAVES TO DETERMINE GAS FLUX AT PAVLOF VOLCANO, ALASKA, DURING THE 2007 ERUPTION
- 14:20 Michael West, Matt Gardine, Natalia Ruppert, Carl Tape, Jeffrey Freymueller, Stephen Holtkamp PERSPECTIVES ON THE M_w 7.1 INISKIN EARTHQUAKE

14:40 Coffee break

Tectonics and experiments (Oral presentations)

REIC 201, 15:00 – 16:20

Chair: Jeff Freymueller

15:00 Jeff Freymueller PLATE BOUNDARIES IN THE NORTH PACIFIC

15:20 Higashi Uchida STRAINMETER ARRAY OBSERVATION OF THE DIKE INTRUSION AT SAKURAJIMA VOLCANO ON 15 AUGUST 2015

15:40 Johan Gilchrist and Mark Jellinek SEDIMENT WAVES AND CLOUD LAYERING IN EXPLOSIVE VOLCANIC ERUPTIONS: EVIDENCE FROM ANALOGUE EXPERIMENTS

16:00 Shanshan Li, Jeff Freymueller, Natalia Ruppert, Jianjun Wang CORRELATION STUDY OF COULOMB STRESS CHANGE IMPARTED BY TWO NEW SLOW SLIP EVENTS AND SEISMIC RATE CHANGE IN LOWER COOK INLET OF THE ALASKA-ALEUTIAN SUBDUCTION ZONE

WEDNESDAY, JUNE 1

Morning coffee and informal discussions

REIC lobby, 07:30 – 08:00

07:30 Breakfast.

TECHNICAL SESSIONS

Geology & Petrology & Geochemistry (Oral presentations)

REIC 201, 08:00 – 10:00

Chairs: Michelle Coombs and Kirsten Nicolaysen

08:00 Izumi Yokoyama ORIGIN OF CALDERAS: COLLAPSES OR EXPLOSIONS?

08:20 Maxim Portnyagin, Kaj Hoernle, Reinhard Werner, Boris Baranov, Gene Yogodzinski and BERING participants BERING - A NEW INTERNATIONAL MARINE RESEARCH PROJECT TO INVESTIGATE THE MAGMATIC AND TECTONIC EVOLUTION OF THE BERING SEA AND ITS MARGINS

08:40 Kirsten Nicolaysen, Dixie West, Virginia Hatfield, Breanyn MacInnes, Mitsuru Okuno, Arkady Savinetsky, Olga Krylovich, Pavel Izbekov, Lyman Persico, John Lyons, Max Kaufman, Christina Neal, William E. Scott, John Power A CASE FOR INTEGRATED GEOSCIENCE AND ARCHEOLOGICAL STUDIES IN THE ALEUTIAN ARC

09:00 Owen K. Neill, Christopher J. Nye EVIDENCE FOR MAGMA MIXING AND RAPID MAGMATIC ASCENT IN GROUNDMASS GLASS COMPOSITIONS FROM THE 2008 ERUPTION OF KASATOCHI, CENTRAL ALEUTIAN ISLANDS

09:20 Taryn Lopez, Tobias Fischer, Andrea Rizzo ISOTOPIC CONSTRAINTS ON VOLATILE CYCLING WITHIN THE ALEUTIAN ARC

09:40 Alex M. Iezzi, Douglas M. Thompson, Beverly Chomiak LAHAR INUNDATION MODELING WITH THE AID OF HISTORIC FLOW DEPOSITS AT REDOUBT VOLCANO, COOK INLET, ALASKA

10:00 Coffee break

Geology & Petrology & Geochemistry (Oral presentations) cont. REIC 201, 10:00 – 12:00

Chairs: Taryn Lopez and Pavel Izbekov

- 10:20 Michelle Coombs and Brian Jicha GEOLOGY AND $^{40}\text{AR}/^{39}\text{AR}$ GEOCHRONOLOGY OF LONG-LIVED AKUTAN VOLCANO, EASTERN ALEUTIAN ISLANDS
- 10:40 Daniel Rasmussen, Terry Plank, Amanda Lough, Pete Stelling, Diana Roman PETROLOGIC CHRONOLOGY OF THE 1999 SUB-PLINIAN ERUPTION OF SHISHALDIN VOLCANO
- 11:00 Sam H. Sheffer, Virginia Hatfield, Kirsten Nicolaysen, Thomas Bartlett III, Dixie West, Emily Deacon, Kale Bruner SOURCING PREHISTORIC OBSIDIAN TOOLS IN THE ISLANDS OF FOUR MOUNTAINS, ALASKA
- 11:20 Alexander Proussevitch, Pavel Izbekov, Dork Sahagian THE RELATION BETWEEN PRE-FRAGMENTATION BUBBLE SIZE DISTRIBUTION, ASH PARTICLE MORPHOLOGY, AND THEIR INTERNAL DENSITY: IMPLICATIONS TO VOLCANIC ASH TRANSPORT AND DISPERSION MODELS
- 11:40 O.V. Bergal-Kuvikas, V.L. Leonov, A.N. Rogozin, I.N. Bindeman, E.S. Kliapitskiy NEW DISCOVERED LATE MIOCENE VERCHNEAVACHINSKAY CALDERA ON EASTERN KAMCHATKA (UPSTREAM OF LEVAYA AVACHA AND KAVYCHA RIVERS): GEOLOGY, BOUNDARY AND COMPOSITION
- 12:00 Lunch

Geology & Petrology & Geochemistry (Oral presentations) cont. REIC 201, 13:00 – 13:40

Chairs: Taryn Lopez and Pavel Izbekov

- 13:00 Cheryl Cameron, Katherine Mulliken, Janet Schaefer, Kristi Wallace, Scott Crass ALASKA TEPHRA DATABASE
- 13:20 Jessica F. Larsen, Janet R. Schaefer, James W. Vallance PETROLOGY AND GEOCHEMISTRY OF THREE EARLY HOLOCENE ERUPTIONS FROM MAKUSHIN VOLCANO, ALASKA

Interdisciplinary poster session

REIC lobby, 14:40 – 17:00

Presiding: Jeff Freymueller and Pavel Izbekov

Coffee will be served at 14:40.

- 1 Celso R. Alvizuri and Carl Tape FULL MOMENT TENSOR AND SOURCE-TYPE ESTIMATION FOR VOLCANIC EVENTS
- 2 Ophelia George, Joan L. Latchman, Charles Connor, Stephen McNutt, Laura Connor GENERATING DYNAMIC VOLCANIC HAZARD MAPS FOR DOMINICA, LESSER ANTILLES BY USING GEOPHYSICAL DATA AS WEIGHTS IN SPATIAL INTENSITY MAPS
- 3 A.V. Kiryukhin, S.A. Fedotov, P.A. Kiryukhin GEOMECHANICAL INTERPRETATION OF LOCAL SEISMICITY CONCERNING ACTIVITY OF TOLBACHIK, KORYAKSKY AND AVACHINSKY VOLCANOES OF KAMCHATKA IN 2008-2012
- 4 Vipul Silwal and Carl Tape SEISMIC MOMENT TENSORS AND ESTIMATED UNCERTAINTIES IN SOUTHERN ALASKA SUBDUCTION ZONE

- 5 Michael West, Natalia Ruppert, Natalia Kozyreva, Sara Meyer, Dara Merz, Miriam Braun TRACKING GLACIERS WITH THE ALASKA SEISMIC NETWORK
- 6 Yusuke Yamashita, Masanao Shinohara, Tomoaki Yamada, Kazuo Nakahigashi , Hajime Shiobara, Kimihiro Mochizuki, Takuto Maeda, Kazushige Obara LONG-TERM OCEAN BOTTOM MONITORING OF SLOW EARTHQUAKES ON THE SHALLOW PLATE INTERFACE IN HYUGA-NADA, WESTERN PART OF THE NANKAI TROUGH
- 7 Noritoshi Okazaki, Ryo Takahashi, Makoto Tamura, Hiroaki Takahashi, Masayoshi Ichiyanagi, Teruhiro Yamaguchi, Ryo Honda, Yosuke Miyagi, Akimichi Takagi GRAVITY DECREASE AND VOLCANIC INFLATION AROUND THE ACTIVE CRATER AT TOKACHI-DAKE VOLCANO, HOKKAIDO, JAPAN
- 8 S.S. Serovetnikov, E.I. Gordeev, Hiroaki Takahashi, Pavel Izbekov THE KLUCHEVSKAYA VOLCANO GROUP OBSERVATION NETWORK 2006-2016. RUSSIA, KAMCHATKA.
- 9 Nikolay Shestakov, Grigory Nechaev, Nikolay Titkov, Mikhail Gerasimenko, Victor Bykov, Victor Pupatenko, Sergey Serovetnikov, Alexander Prytkov, Nikolay Vasilenko, Dmitry Sysoev, Alexey Sorokin, Hiroaki Takahashi and Mako Ohzono HAVE THE POSTSEISMIC MOTIONS DUE TO THE MAY 24, 2013 Mw 8.3 OKHOTSK DEEP FOCUS EARTHQUAKE BEEN DISCOVERED BY THE RUSSIAN FAR EAST GNSS NETWORKS?
- 10 Natalia Gorbach, Maxim Portnyagin, Tatiana Filosofova COMPOSITIONAL TRENDS OF AMPHIBOLE IN 2001-2013 YOUNG SHIVELUCH ANDESITES AS EVIDENCE OF MAGMA CHAMBER REPLENISHMENT AND SUBSEQUENT CONVECTION
- 11 Natalia Gorbach, Anastasiya Plechova , Dmitry Melnikov and Sergey Samoilenko LANDSLIDE AT ZHUPANOVSKY VOLCANO (KAMCHATKA) IN JULY 2015: DISTRIBUTION OF THE DEPOSITS AND POTENTIAL PRECURSORS
- 12 Kosuke Ishige, Mitsuhiro Nakagawa, Seiko Yamasaki, Akikazu Matsumoto GEOLOGY AND PETROLOGY OF TAISETSU VOLCANO GROUP, JAPAN; EVOLUTION OF MAGMA AND ACTIVITY AGES.
- 13 Olga Khubaeva and Antonina Nikolaeva THERMAL SUPPLY OF HYDROTHERMAL SYSTEM, A CASE STUDY OF THE BOGDANOVICH VOLCANIC CENTER HYDROTHERMAL SYSTEM (PARAMUSHIR ISLAND, THE KURIL ISLANDS)
- 14 Olga Khubaeva, Sergey Samoylenko MUTNOVSKY AND GORELY VOLCANOES IN KAMCHATKA: A PERFECT CLASSROOM FOR TEACHING VOLCANOLOGY
- 15 Heather Miller, Jake Roush, Taryn Lopez, Tobias Fischer, Matt Schrenk FIRE AND LIFE: MICROBIAL MEDIATION OF DEEP CARBON CYCLING ALONG THE “RING OF FIRE”, A SUBDUCTING OCEANIC LITHOSPHERE, WESTERN ALEUTIAN ISLANDS
- 16 Mitsuhiro Nakagawa THE EFFECT OF THE AD 1611 SANRIKU EARTHQUAKE ON VOLCANIC ACTIVITY IN HOKKAIDO, JAPAN
- 17 A.G. Nikolaeva, G.A. Karpov, A.F. Sashenkova SUMMARY OF 20-YEARS’ SURVEY OF MINERAL COMPOSITION OF THE KARYMSKOYE CALDERA LAKE AFTER ITS 1996 HAZARDOUS ERUPTION
- 18 A.N. Rogozin, V.L. Leonov NEW DATA ON THE EOPLEISTOCENE CATASTROPHIC CALDERA-FORMING ERUPTION IN KAMCHATKA
- 19 Dmitry Savelyev, Olga Savelyeva , Maxim Portnyagin FRAGMENTS OF CRETACEOUS SEAMOUNTS IN ACCRETIONARY STRUCTURE OF THE KAMCHATSKY MYS PENINSULA (KAMCHATKA, RUSSIA)

- 20 Chiharu Tomijima, Mitsuhiro Nakagawa GEOLOGICAL STUDY ON CALDERA-FORMING ERUPTION OF SHIKOTSU VOLCANO, SOUTH-WESTERN HOKKAIDO : SPECIAL REFERENCE TO VENT FORMATION PROCESS AND MAGMA SYSTEM
- 21 Anna Volynets, Maria Pevzner, Andrey Babansky GEOCHEMISTRY OF NEOGENE-QUATERNARY MAGMATISM OF THE SOUTHERN PART OF SREDINNY RANGE, KAMCHATKA
- 22 Victor N. Chebrov, Anna A. Skorkina, Danila V. Chebrov, Dmitry V. Droznin, Dmitry A. Ototuk REAL-TIME EARTHQUAKE MONITORING FOR TSUNAMI WARNING IN KAMCHATKA DURING 2011-2015
- 23 Kei Ioki, Yuichiro Tanioka, Gentaro Kawakami, Yoshihiro Kase, Kenji Nishina, Wataru Hirose, Satoshi Ishimaru, Hideaki Yanagisawa TSUNAMI SIMULATION AND LANDSLIDE MODEL OF THE 1741 OSHIMA-OSHIMA ERUPTION
- 24 Yoshihiro Kase, Keiichi Hayashi, Gentaro Kawakami, Kenji Nishina, Atsushi Urabe, Yasuhiro Takashimizu CHARACTERIZATION OF ELECTRIC CONDUCTIVITY, PH, AND ORGANIC-WALLED MICROFOSSILS FOR IDENTIFYING TSUNAMI DEPOSITS: AN EXAMPLE OF MODERN TSUNAMI AND PALEOTSUNAMI DEPOSITS IN PACIFIC COAST LOWLANDS, HOKKAIDO AND TOHOKU, JAPAN
- 25 Olga Girina, Evgenii Gordeev, Alexander Manevich, Dmitry Melnikov, and Anton Nuzhdaev 2015-2016 ACTIVITY OF KAMCHATKAN AND NORTHERN KURILES VOLCANOES (RUSSIA) AND DANGER TO AVIATION
- 26 Hiroki Miyamachi, Koshun Yamaoka, Hiroshi Yakiwara, Yuta Maeda, Toshiki Watanabe, Takahiro Kunitomo, Takeshi Tameguri³, Masato Iguchi TEMPORAL VARIATION OF THE ACROSS SIGNALS DURING A PERIOD FROM JANUARY TO AUGUST, 2015 IN SAKURAJIMA VOLCANO, JAPAN.
- 27 Hugh Harper and Jeff Freymueller REVISITING COSEISMIC AND POSTSEISMIC DEFORMATION FROM THE 2002 DENALI, ALASKA EARTHQUAKE

THURSDAY, JUNE 2

EXCURSION

Field excursion to Chena Hot Springs		09:00 – 22:00
09:00	Bus picks up participants at the southern entrance to the Reichardt Building. Ride to the hot springs, on-bus discussions.	
10:00	Arrival to the hot springs. Visit to hydrothermal power plant and other local attractions.	
12:00	Lunch (boxes)	
13:00	Discussions continue in the hot springs	
17:30	Dinner at the Chena Hot Springs restaurant	
20:30	Bus ride back to Fairbanks	

FRIDAY, JUNE 3

TECHNICAL SESSIONS

Morning coffee

REIC lobby, 07:30 – 08:00

07:30 Breakfast.

Volcano Monitoring (Oral presentations)

REIC 201, 08:00 – 10:00

Chairs: Peter Webley and Taryn Lopez

- 08:00 John Lyons, Matthew Haney, David Fee, Cindy Werner, Christoph Kern, Diana Roman, and John Power RECENT ADVANCES IN GEOPHYSICAL MONITORING AT MOUNT CLEVELAND VOLCANO, ALASKA
- 08:20 Alex M. Iezzi, Hans F. Schwaiger, David Fee, Matthew Haney CONSTRAINING THE SPATIAL AND TEMPORAL VARIABILITY OF ATMOSPHERIC CONDITIONS TO EXPLORE THE INFRASOUND DETECTION OF VOLCANIC ERUPTIONS IN ALASKA
- 08:40 Kathleen McKee, David Fee, Akihiko Yokoo, Robin Matoza ANALYSIS OF FUMAROLE ACOUSTICS AT ASO VOLCANO, JAPAN
- 09:00 Jonathan Dehn, Peter Webley, and Anna Worden ERUPTION TRENDS IN THE KURILE, KAMCHATKA, AND ALASKAN ARCS
- 09:20 Shigeki Tasaka, Masaya Matsubara, Yasuhiro Asai, and Fumiaki Kimata INCREASING OF GAS BUBBLINGS AT WARIISHI FLOWING SPRING, CENTRAL JAPAN, PRIOR TO THE 2014 ONTAKA VOLCANO ERUPTION
- 09:40 P. W. Webley, O. Girina, J. S. Shipman REMOTE SENSING ANALYSIS OF THE 2015-2016 SHEVELUCH VOLCANO ACTIVITY
- 10:00 Coffee break

Volcano Monitoring (Oral presentations) continued

REIC 201, 10:20 – 12:00

Chairs: Peter Webley and Taryn Lopez

- 10:20 David Fee, Matt Haney, Robin Matoza, Dave Schneider, Peter Cervelli, Alex Iezzi INFRASOUND AND SEISMIC OBSERVATIONS OF THE MARCH 2016 ERUPTION OF PAVLOF VOLCANO, ALASKA
- 10:40 P. Webley, J. Dehn, M. Harrild, A. Worden, D. McAlpin THERMAL REMOTE SENSING AND ASH DISPERSION MODELING OF THE 2016 ERUPTION OF PAVLOF VOLCANO
- 11:00 Taishi Yamada, Hiroshi Aoyama, Takeshi Nishimura, Masato Iguchi, Muhamad Hendrasto ESTIMATION OF VOLUME FLUX OF VOLCANIC ERUPTIONS WITH VERY-LONG-PERIOD ACOUSTIC SIGNALS
- 11:20 Ryo Tanaka, Takeshi Hashimoto, Tsuneo Ishido, Nobuo Matsushima NUMERICAL MODEL OF TEMPORAL CHANGES IN MAGNETIC TOTAL FIELD AND GROUND DEFORMATION DUE TO HYDROTHERMAL SYSTEM IN VOLCANOES (1). - A CASE STUDY ON TOKACHI-DAKE VOLCANO, JAPAN
- 11:40 Rui Fernandes, Machiel Bos, Rafael Couto, Jeff Freymueller, and Maksim Tretyakov EVALUATING THE INFLUENCE OF DATA GAPS IN THE ANALYSIS OF POSITION TIME-SERIES

DERIVED FROM GPS CONTINUOUS STATIONS

12:00 Lunch

Tsunami (Oral presentations)

REIC 201, 13:00 – 13:40

13:00 Dmitry Nicolsky, Elena Suleimani, Jeffrey Freymueller and Richard Koehler HYPOTHETICAL TECTONIC TSUNAMI SOURCES ALONG THE EASTERN ALEUTIAN ISLAND ARC AND ALASKA PENINSULA FOR INUNDATION MAPPING AND HAZARD ASSESSMENT

13:20 Elena Suleimani, Dmitry Nicolsky, Rich Koehler REGIONAL TSUNAMI HAZARD MAP FOR COMMUNITIES ON ALEUTIAN ISLANDS AND ALASKA PENINSULA

Discussion, concluding remarks and wrap up

REIC 201, 13:40 – 14:40

Presiding: Jeff Freymueller, John Eichelberger, Minoru Kasahara, and Evgenii Gordeev

14:40 Coffee break

Additional time for focused group meetings and discussions

REIC 201, 14:40 – 17:30

Farewell dinner on the Tanana Chief Riverboat

17:30 – 21:00

17:30 Depart for farewell dinner on the riverboat. Bus picks up participants at the southern entrance to the Reichardt Building. Local participants are encouraged to use their own transportation.

21:00 Bus ride back to the Reichardt Building.

Adjourn!

Katmai trip starts next morning!