

**7<sup>th</sup> BIENNIAL WORKSHOP on JAPAN-KAMCHATKA-ALASKA SUBDUCTION PROCESSES:**

**MITIGATING RISK THROUGH INTERNATIONAL VOLCANO, EARTHQUAKE, AND TSUNAMI SCIENCE  
(JKASP-2011)**



Institute of Volcanology and Seismology FEB RAS (IVS)  
Petropavlovsk-Kamchatsky, Russia, August 25<sup>th</sup> -30<sup>th</sup>, 2011

**SECOND CIRCULAR AND CALL FOR ABSTRACTS**

**Objectives:**

The 7<sup>th</sup> international workshop on the Japan- Kurile-Kamchatka-Aleutian volcanic arcs, among the most volcanically and seismically active areas on Earth, will be held August 25<sup>th</sup> -30<sup>th</sup>, 2011 in Petropavlovsk-Kamchatsky, Russia. The region includes transitions from ocean-ocean to ocean-continent convergence, arc rifting by oblique convergence, an exceptional subduction “cusp”, and a newly defined micro-plate. High rates of lithospheric flow help to illuminate linkages among plate interaction, seismicity and volcanism and resultant hazards from earthquakes, tsunamis, and eruptions. The interdisciplinary and international nature of the workshop brings together scientists to solve problems that cross unchanged through international borders. The fusion of many geophysical techniques in this unique natural laboratory will allow us to more effectively monitor its hazards and mitigate risks of natural disaster.

Session themes are:

- Recent or ongoing volcanic eruptions and recent major earthquakes;
- New results from tectonic, volcanological, seismological, and marine research
- New developments in ground-, air-, and satellite-based monitoring techniques and in modeling and forecasting hazard events.

A special discussion will focus on how we can extend geophysical monitoring and improve crisis response through bilateral and/or trilateral initiatives. Activities to be proposed may include joint installation of new monitoring networks, joint field studies including scientific cruises, and real-time sharing of monitoring data. Past outcomes from the JKASP series of meetings, which cycle biennially among Petropavlovsk-Kamchatsky, Sapporo, and Fairbanks, are new international projects, a field school (<http://www.uaf.edu/geology/field-studies/international-volcanologi/>), and publications including an [AGU Geophysical Monograph 172](#).

## **ABSTRACT DEADLINE: JUNE 1<sup>ST</sup> 2011**

We suggest the page size should be formatted with a minimum font size of 12 points Times Roman with 2.5 cm margin on all sides. Any common format is acceptable: simple text, Microsoft Word®, Acrobat PDF®, with figures as GIF or JPEG. If your abstract has figures, please submit a single .zip or .rar archive containing one file for the abstract (text only), and separate files for each figure. In case of any questions on abstract submission, please contact the local organizing committee.

**Abstracts from Russian participants should be submitted in both English and Russian and are limited to two pages with figures and references.**

## **VISA FOR INTERNATIONAL PARTICIPANTS**

All those from outside Russia who would like to participate in JKASP-7 must plan to apply for Russian visa well in advance. An invitation letter is required for your visa application. So that we can provide the letter, please fill out the accompanying [questionnaire](#) online as soon as possible, but no later than May 1<sup>st</sup> 2011.

## **SCHEDULE AND SCIENTIFIC SESSIONS**

### **Wednesday, August 24**

15:00 – 18:00 Arrival of participants, pick up, accommodation in a hotel and registration at IVS  
19:00 – 21:00 Reception

### **Thursday, August 25**

09:00 – 09:30 Workshop Opening and Welcome

09:30 – 12:30 Scientific Session: Recent or Ongoing Eruptions and Recent Major Earthquakes

Lunch

14:30 – 18:00 Scientific Session: Recent or On-Going Eruptions and Recent Major Earthquakes

### **Friday, August 26**

09:30 – 12:30 Scientific Session: New Results from Tectonic, Volcanological, Seismological, and Marine Research

Lunch

14:30 – 17:00 Scientific Session: New Results from Tectonic, Volcanological, Seismological, and Marine Research

18:00 – 21:00 Pick-up at IVS to Paratunka Resort. Bathing, Dinner and Informal discussions of Scientific Talks

### **Saturday, August 27**

Field Excursions to Gorely, Mutnovsky and Avachinsky (depending on weather)

## **Sunday, August 28**

Field Excursion to Ksudach by helicopter (depending on weather)

## **Monday, August 29**

09:00 – 12:30 Scientific Session: New developments in ground-, air-, and satellite-based monitoring techniques and in modeling and forecasting hazard events

Lunch

14:30 – 18:00 Scientific Session: New developments in ground-, air-, and satellite-based monitoring techniques and in modeling and forecasting hazard events

Farewell Dinner

## **Tuesday, August 30**

09:00 – 11:30 Discussion of new international projects on cooperation and educational exchange, for example: GeoPRISMS, GEO Supersites, ICDP, DCO, and bilateral initiatives.

11:30 – 12:30 Closing session

Lunch

Participants depart for home.

### **Steering committee:**

Evgeny Gordeev and Victor Chebrov, Petropavlovsk-Kamchatsky, Russia

Hiroaki Takahashi and Mitsuhiro Nakagawa, Sapporo, Japan

John Eichelberger, Reston, Virginia and Pavel Izbekov, Fairbanks, Alaska, USA

### **Local organizing committee:**

Evgeny Gordeev, (chairman), Yaroslav Muravyov, Vladimir Leonov, Olga Girina, Sergey Ushakov, Oxana Evdokimova, Victor Chebrov, Vadim Saltykov, Yulia Kugaenko.

### **Form of Workshop:**

There will be a mixture of invited and contributed talks, with ample time for discussion. Poster presentations are also welcome, no more than two from a participant. Student participation is encouraged.

**Meeting venue:** Institute of Volcanology and Seismology FEB RAS (IVS), Petropavlovsk-Kamchatsky (PK).

**Transportation :** There are daily flights between Moscow and Petropavlovsk, as well as frequent flights from Saint Petersburg, Novosibirsk, Khabarovsk and Vladivostok. Vladivostok is easily reached from Seoul and Tokyo.

**Weather:** August in PK is generally sunny with occasional rain and a typical daytime temperature of 18°C. A period of heavy rain is possible.

**Costs:** We anticipate that costs for food and lodging will average about \$120/day. There will also be a **registration fee of about \$300** to cover group events and transportation. The registration fee will be paid at IVS in cash (Rubles, US Dollars, or Euro). Please note that foreign currency must be free of any marks or tears, and that ATM machines are abundant.

**Accommodation:** Hotels “Edelweiss”, “Petropavlovsk”, “Avacha” and “Oktyabrskaya” are available. The cheapest suite fee is around \$100 at the “Edelweiss” with basic facilities and is in easy walking distance to the IVS location.

**Financial support:** The organizers anticipate support by the Far East Branch of Russian Academy of Sciences (FEB RAS), Russian Foundation for Basic Research (RFBR), Division of Earth Sciences of Russian Academy of Sciences, US Geological Survey (USGS), National Scientific Foundation (NSF), and University of Alaska, Fairbanks, USA.

**If you are interested in receiving subsequent circulars on this meeting, please send an e-mail to [lvl@kscnet.ru](mailto:lvl@kscnet.ru)**

Russian participation will be coordinated by Oxana Evdokimova ([evdokimova@kscnet.ru](mailto:evdokimova@kscnet.ru)).

Japan participation will be coordinated by Hiroaki Takahashi ([hiroaki@mail.sci.hokudai.ac.jp](mailto:hiroaki@mail.sci.hokudai.ac.jp)).

Participation by scientists from all other countries will be coordinated by Pavel Izbekov ([pavel@gi.alaska.edu](mailto:pavel@gi.alaska.edu)).

**Updated information will be posted at <http://www.kscnet.ru/ivs/index.html>**

## **EXCURSIONS:**

Lorry field trips to Gorely, Mutnovsky and Avachinsky will be held on the same day. Note that the priority will be given to the flight to Ksudach if the weather permits. If this happens, field trips to Gorely, Mutnovsky and Avachinsky will be performed on any other day.

### **1. GORELY VOLCANO**

*Field trip costs \$50 that covers transportation and food.*

Gorely (1829 m) is an active volcano located 70 km southwest of Petropavlovsk-Kamchatsky. The present-day edifice occupies the central part of the caldera. It consists of three closely spaced cones that constitute a mountain range stretching to west-north-west. The summit is capped by 11 superimposed craters. About 40 flank vents with lava flows reside slopes of the summit. Composition of erupted lavas varies from basalts to andesites. The first historic record of eruptive activity dates from the 19th century. Explosive eruptions from the summit crater occurred in 1828, 1832, 1855, and 1869. In the 20th century Gorely produced seven eruptions in 1929, 1930, 1931, 1932, 1947, 1961, 1980-1981, and 1984-1986. The 1980-1981 eruption produced up to 65,000 tons of material that covered an area of 500 sq. km. During the 1984-1986

eruption the height of gas-ash clouds reached 5300 m above sea level. At present since early June 2006 the volcano has been producing a new cycle of activity. A new bocca emerged on the north-eastern wall at the base of the active crater filled with an acid lake. A funnel 20 m in diameter formed above the vent of the bocca. Incandescent gas emissions burst from the vent at high pressure. Output temperature calculated from infrared data is 870°C. Continuous roaring can be heard from the bocca. Information on the on-going activity can be seen at: <http://www.kscnet.ru/ivs/kvert/current/grl/> .



*View of Gorely from the southwest. Photograph by Pavel Izbekov (UAF)*

We offer a day trip to Gorely volcano on a 4WD cabin lorry. Departure at 9 am from IVS. It takes about two and a half hours to get to the basement on unpaved road. Moderate strenuous hiking will last about 6 hours. Lunch is provided. Estimated time of return to Petropavlovsk-Kamchatsky is 8 pm.

### **MUTNOVSKY VOLCANO**

*Cost: \$50 including food and transportation. Note that this field trip will be held on the same day in parallel with the trip to Gorely. Participants of both trips depart and come back at the same time.*

Mutnovsky (2323 m) is an active volcano located 70 km southwest of Petropavlovsk-Kamchatsky and 17 km south-east of Gorely. Mutnovsky is one of the most picturesque and compositionally diverse volcanoes in southern Kamchatka. The volcano is a complex edifice formed by four-intergrown stratovolcanoes. The active vent 440x100 m in size is embedded into the western rim of the main crater. Temperature of fumaroles in the active vent reaches 600°C. The known explosive eruptions occurred in 1848, 1852-1854, 1898, 1904, 1916-17, 1927-29, 1938-1939, 1960-1961, 2000 and 2007. On 17 March 2000 two phreatic bursts occurred in the active vent and in the neighboring crater. A 80 m in diameter funnel was formed in the active vent. As a result of interaction of bursts and flux of hot gas, the crater glacier was melted substantially and a lake formed in the neighboring crater. A funnel of 200 m in diameter and 30 m deep emerged during the 17 April 2007 phreatic explosion in the active vent. An ash cloud persisted for 6 hours in satellite images:

<http://www.kscnet.ru/ivs/kvert/current/mtn/>.





*View on the 2000 crater of Mutnovsky. Photograph by Pavel Izbekov (UAF)*

Participants of this one-day excursion hike the crater and will see a variety of recent hydrothermal processes: boiling mud pods, hot acid lakes and fumarolic fields. These processes result in deposition of many different minerals: native sulfur, alunite, opal, hematite, ammonium chloride, gypsum, pyrite, marcasite, cinnabar, chalcopyrite, pyrrhotite, etc.

### **AVACHINSKY VOLCANO**

*Field trip fee is \$50 including food and transportation.*

Avachinsky is a typical Somma-Vesuvius type volcano located 30 km north of Petropavlovsk-Kamchatsky. The maximum height is 2751 m, while the height of the somma in its eastern part is 2317 m. The active cone rises 400-1000 m above the somma edge. At the base, this cone is about 4 km in diameter, and is crowned by the crater 350 m in diameter. During the last 250 years eruptions occurred in 1737, 1772, 1779, 1789, 1827, 1837, 1855, 1878, 1881, 1894-1895, 1901, 1909, 1926-1927, 1938, 1945, and 1991.



*View to Avachinsky from Petropavlovsk-Kamchatsky.  
Photograph of Aleksandr Sokorenko (IVS)*

One of the largest eruptions June 15-16, 1779, produced an ashfall that dusted the ships of the Cook's expedition anchored in Avacha Bay. The 1894-1895 eruption was preceded by an

earthquake. Lava flows happened in 1827, 1901, 1909, and 1938. The latest eruption of 13 January 1991 produced lava that completely filled the crater and poured a flow of 600 m length down the south-eastern slope of the cone. A short gas explosion occurred on 5 October 2001 and the lava “cork” in the crater was broken. Nowadays, vigorous superheated steam plumes issue from both ends of the crack:

[http://www.kscnet.ru/ivs/kvert/volcanoes/Avachinsky/index\\_eng.php](http://www.kscnet.ru/ivs/kvert/volcanoes/Avachinsky/index_eng.php)

Departure to Avachinsky starts at 8 am from IVS. The ride takes about 3 or more hours depending on the state of the road. The strenuous 4-5 hour hiking to the top (about 1500 m ascent) is suitable for physically fit outdoor participants. Descent takes about one and a half hour. Lunch and slight snack are provided. Estimated time of return to Petropavlovsk-Kamchatsky is 8 pm.

### **KSUDACH VOLCANO**

*Helicopter tour fee is \$200 including food and transportation.*

Ksudach is a caldera-type volcano

[http://www.kscnet.ru/ivs/kvert/volcanoes/Ksudach/index\\_eng.php](http://www.kscnet.ru/ivs/kvert/volcanoes/Ksudach/index_eng.php). It is an eroded flattened cone with the base of 18x22 km. The edifice consists of calderas of different ages and remnants of intra-caldera volcanoes. The young Shtyubel cone in northern part is a center of the most recent volcanic activity of Ksudach. The absolute height of the edifice is 1079 m. Relative height is 500 m east and 700 m west.

Several calderas are located at the summit of the volcano: two large calderas (I and II) formed in late Pleistocene; three calderas of smaller size (III, IV and V) formed in Holocene. The last caldera-forming eruption at volcano 250 AD, was one of the largest Holocene eruptions in the Kurile-Kamchatka region. The character and parameters of the eruption were similar to the 1883 eruption of Krakatau.



*Shtyubel Crater at the summit of Ksudach.  
Photograph by Nikolai Smelov (IVS)*

The last eruption at Ksudach occurred in 1907, forming Shtyubel cone, with a crater of 1x1.7 km at its summit. A 4-5 m thick dacite pumice layer was deposited northward of the volcano. Pyroclastic deposits related to this eruption extended northeast for 40 km and 15 km southeast.

Atypical events associated with this eruption were noted. The episodes of eruptive activity produced black cinders of andesite – andesite-basalt composition that with no sign of a pause gave way sharply to jets of dacite pumice, with volcanic and basement lithics mixed pyroclastics including facies of ignimbrites. The eruption ended by producing phreatic jets that sent a great number of blocks of crystalline, allivalite-eucrite rocks.

Crater lakes Styubel and Klyuchevskoe are nested at the summit of the volcano. The shore of Klyuchevskoe Lake, called Goryachii Plage (Hot Beach), has a the temperature of 60°C extending for 250 m. Continuing gas and hydrothermal activity at volcano is observed at Paryashii Utes and Paryashii Greben extrusions. These are typical mofettes with a temperature of 80-90°C and emissions of CO<sub>2</sub> with traces of HCL and H<sub>2</sub>S.

## **QUESTIONNAIRE FOR GETTING AN OFFICIAL LETTER OF INVITATION**

1. Full name (last, first, middle)
2. Date of birth (date, month, and year)
3. Place of birth (town, city, country)
4. Sex (female/male)
5. Citizenship
6. Place of residence
7. Passport number, date of issue/expiration
8. Authority issued the passport
8. Institution (full title) and address
9. Position
10. Telephone number, e-mail, fax
11. Clear and readable copy of the first two pages of the passport in JPG format
12. Dates of stay
13. Purpose of stay (full title of the workshop, field work or project)
14. City where visa is issued
15. City where you enter the Russian Federation
16. Cities to be visited in RF



## JKASP-7 MANUAL REGISTRATION FORM

REGISTRATION DEAD LINE May 1<sup>st</sup> 2011

There will be a **registration fee of about \$300** to cover group events and transportation. For foreign participants the registration fee will be paid in Rubles, US dollars or Euro at IVS in cash.

**Title** \_\_\_\_\_

**First Name** \_\_\_\_\_

**Last Name** \_\_\_\_\_

**E-mail address** \_\_\_\_\_

**Affiliation** \_\_\_\_\_

**Position** \_\_\_\_\_

**Mail address** \_\_\_\_\_

**Title of the presentation** \_\_\_\_\_

**Oral/Poster** \_\_\_\_\_

**Arrival** \_\_\_\_\_

**Departure** \_\_\_\_\_

*Field Excursion 1* to Gorely, Mutnovsky and Avachinsky will be held in parallel on the same day.

*Field Excursion 2* to Ksudach by helicopter will be held on the other day. *Note* that the priority will be given to the flight to Ksudach if the weather permits. If this happens, field trips to Gorely, Mutnovsky and Avachinsky will be performed on any other day.

Field Trips	Cost per person	Date	Yes/No
Mutnovsky volcano	\$50	August 27 or 28	
Gorely volcano	\$50	August 27 or 28	
Avachinsky volcano	\$50	August 27 or 28	
Ksudach volcano (helicopter)	\$200	August 27 or 28	

*Note: You may choose #4 and one of #1, 2, or 3*