

**Fourth International Workshop on  
OROGENIC LHERZOLITE  
AND  
MANTLE PROCESSES**

**Samani, Hokkaido, Japan; Aug. 26 - Sept. 3, 2002**

*Second Circular, November 2001*

**Organizing Committee**

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## Scientific Program

The Samani Workshop is aimed at discussion and exchange of ideas on a wide range of topics related to the origin, evolution and emplacement history of continental and oceanic mantle rocks, and physical and chemical processes in the mantle. It will consist of a three-day indoor meeting (August 29-31) to be held in the Town Hall of Samani, and a two-day field excursion in the Horoman peridotite (August 27-28 and September 1-2). The Organizing Committee strongly hopes to bring together geologists, petrologists, geochemists and geophysicists with diverse approaches and methodologies. Main scientific themes and key topics of the workshop are summarized as follows, but the list is in no way exclusive.

- (1) **Origin of heterogeneity on various scales as documented in mantle derived ultramafic rocks, with particular emphasis on mechanisms for forming layered structures:**
  - origin and significance of mafic layers (pyroxenites, gabbros, eclogites); magmatic segregates or recycled components?
  - significance of refractory layers; related to magma channeling, melt compaction waves, or folded and stretched recycled refractory oceanic lithosphere?
  - geochemical stratification of lithospheric mantle.
- (2) **Mechanisms of melt production and modification of partial melts during melt segregation, melt transport, and mantle-melt reactions:**
  - modeling mantle-melt reactions during melt migration with implications for the mechanisms of melt transport in the upper mantle.
  - melting/reaction fronts in mantle rocks: the significance in melt migration.
  - composition, stability fields, reactivity, and physical and transport properties of lithospheric fluids.
  - precise geochronology of melting and metasomatic events in mantle rocks.
- (3) **Rheology of solid and partially molten mantle and flow dynamics in the mantle:**
  - *in situ* mantle tectonics seen through regional measurements of seismic anisotropy.
  - local and global, isotropic/anisotropic seismic tomography of the mantle.
  - effect of mantle heterogeneities on physical properties of mantle rocks.
  - analogical and numerical modeling of mantle convection.
  - Pressure-temperature-deformation history of a mantle peridotite and its bearing on emplacement mechanism of orogenic lherzolite.
- (4) **Recycling and processing of lithosphere into the mantle on local and global scales and the geochemical evolution of the Earth's mantle:**

- geochemical evolution of lithospheric mantle: continuous or discrete melt infiltration processes?
- origin of orogenic lherzolites: rifted subcontinental lithosphere or oceanic ridges?
- nature and composition of deep mantle reservoirs?
- origin of fertile lherzolites: "pristine" (virtually unmelted) mantle vs. refertilized mantle?

## Presentations

Scientific presentations will be made in oral and poster sessions, based on submitted abstracts. Concurrent sessions will be avoided in order to insure sufficient exchange of ideas and equitable exposure for both oral and poster presentations. The official language of the Workshop will be English. No simultaneous translation service will be provided. Participants are limited to one oral and one poster presentations. Submission to both oral and poster by the same senior author is acceptable as long as the papers are on different topics. Depending on the total numbers of submissions and the time allowed, however, we may ask participants to move from oral to poster or vice versa at the program forming stage.

### (1) Oral

15 ~ 20 minutes (depending on number of papers) will be allocated to each oral presentation including time for discussion. More detailed instructions will be given in the third circular. The lecture hall will be equipped with two slide projectors (standard size: 5 cm x 5 cm), two overhead projectors, one liquid crystal display (LCD) projector, and two projection screens.

### (2) Poster

The size of each display board is 0.9 m in height and 1.8 m in width. Sessions for short oral presentations (< 3 minutes) may be placed before the poster sessions.

The Workshop program and more detailed suggestions for presentation will be provided in the third circular.

## Abstracts

**Abstracts must be submitted by ~~April 30, 2002~~ May 30, 2002.** The format is given below. Abstracts should be either in PDF or in Microsoft Word format and be submitted electronically to: [takazawa@sc.niigata-u.ac.jp](mailto:takazawa@sc.niigata-u.ac.jp). A hard copy of the abstract must also be sent along with the Registration & Reservation form to:

Dr. Eiichi Takazawa, Department of Geology, Faculty of Science  
Niigata University, 2-8050 Ikarashi, Niigata 950-2181, Japan  
Fax: +81-25-262-6114

Abstracts should be prepared according to the following format:

Size	A4 size (vertical 29.7 cm x horizontal 21.1 cm)
Length:	Maximum of two pages, single spaced, including figures
Margins:	Top: 2.5 cm Bottom: 3cm Left: 2.5 cm Right: 2.5 cm
Font (all text):	Times New Roman (Times Roman or Times)
Font (figures):	Helvetica or MS Gothic
Title:	14 point bold, capital letters, centered
Authors:	12 point, centered, see example below
Authors Address:	11point, hanging indentation (see example)
Main Text:	12 point, fully justified, single spaced
References:	11 point, in the format shown in example

***Example:***

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**Petrogenesis of Peridotites and Related Mafic Rocks in the Horoman Complex, Hokkaido, Northeast Japan**

Kazuhito OZAWA<sup>1</sup>, Eiichi TAKAZAWA<sup>2</sup>, and Shoji ARAI<sup>3</sup> (12 point, centered)

1. Department of Earth and Planetary Science, University of Tokyo, Tokyo 113-0033, Japan
2. Department of Geology, Faculty of Science, Niigata University, 2-8050 Ikarashi, Niigata 950-2181, Japan
3. Department of Earth Sciences, Faculty of Science, Kanazawa University, Kanazawa, 920-1192, Japan (11 point , flush left)

Geochemical and petrologic studies of upper mantle peridotites provide information about melting processes in the upper mantle. Because of the well-preserved original rock composition and structures in the complex,.....

Lherzolite in the Lower Zone of the Horoman Peridotite has porphyroclastic texture with olivine, orthopyroxene and clinopyroxene occurring as porphyroclasts and neoblasts along ..... (12 point, fully justified, single spaced)

**REFERENCES**

- Takazawa, E., Frey, F. A., Shimizu, N., Obata, M., and Bodinier, J. -L., 1992. Geochemical evidence for melt migration and reaction in the upper mantle. *Nature (London)*, 359, 55-58.
- Obata, M. and Nagahara, N., 1987. Layering of alpine-type peridotites and the segregation of partial melt in the upper mantle. *J. Geophys. Res.*, 92, 2346-3474.
- ..... (11point, hanging indentation)
-

## Proceedings

A series of research papers that will be peer-reviewed, is intended to be published in the Journal of Petrology within one year of the meeting. Previous workshop research papers were published in a Special Volume of the Journal of Petrology in 1991 (First Workshop 1990 - Montpellier) and Chemical Geology in 1996 (Second Workshop 1995 - Granada) and Journal of Petrology in 2001 (Third Workshop 1999 - Pavia).

## Manuscript

Those who intend to contribute to the proceeding volume should express their intentions in the Registration & Reservation Forms. The manuscript should be prepared according to the Journal of Petrology format, and the length is limited to 8000 words including figures, tables and references. The deadline for manuscript submission will be shortly after the conference, and its exact date will be announced in the third circular.

## Registration

Active participants should register by returning the enclosed Registration & Reservation Form via mail or fax to:

**Dr. Eiichi Takazawa, Department of Geology, Faculty of Science  
Niigata University, 2-8050 Ikarashi, Niigata 950-2181, Japan  
Fax & Phone: +81-25-262-6114**

The registration fees for participants are as follows (prices in Japanese yen). A special student rate has been set up to encourage students' participation.

	<del>by April 30, 2002</del>	<del>after May 1, 2002</del>
	by May 30, 2002	after May 31, 2002
Participant	25,000	28,000
Participant (student)	15,000	17,000
Accompanying person	5,000	5,000

The participant registration fee includes:

- (1) the Workshop program,
- (2) the abstract volume,
- (3) participation in the scientific program,
- (4) the icebreaker party and the coffee breaks,
- (5) the two-day field excursion of the Horoman peridotite\*.

(\* The Horoman excursion fee includes guidebooks, transportation, and lunch only. **Accommodation, breakfast, and dinner are *not* included.**)

The accompanying person registration fee includes:

- (1) the icebreaker party and the coffee breaks,
- (2) guided tours of Samani and the surrounding area and/or field excursion to the Horoman peridotite.

## Banquet

A special dinner party will be organized in the evening of August 31 (Saturday) with a fee of 6,000 JPY. Please purchase ticket beforehand by checking on the Payment Form.

## Accommodations

Hotel accommodation in Samani is limited in number because of the town size. A block of rooms has been reserved for the workshop participants at following inns on a first-come, first-served basis. Unless otherwise arranged, all participants will be asked to share a room with colleague/s. Make your reservation by indicating a list of preferred inns in the Registration & Reservation Form together with payment of the deposit of 10,000 JPY. Full payment should be made *at each hotel counter* in Japanese yen (JPY) when checking-out. All prices listed below do not include additional 5 % consumption tax. **Please be aware that credit cards may not be used for the inns (2), (4) and (5).**

### (1) Apoi Sanso Hotel

**Location:** Located at the foot of Mt. Apoi, one of the peaks of the Horoman peridotite mountains. 10-15 min. drive from the conference hall in the Town (a shuttle bus service will be provided between the hotel and the conference hall).

**Room Type:** A hotel offers 7 Japanese-style rooms w/ “tatami” floor (shared by 3 persons) and 12 twin bed rooms. All rooms are associated with private lavatory. Private bathroom is limited in 7 twin rooms. A large Japanese-style public hot-spa is open for all guests.

**Room Charge:** 6,500 JPY per person including breakfast.

**Others:** Payment by credit card can be accepted. Japanese style dinner is available for 1,500 JPY or less in the restaurant.

### (2) Ekimae Minsyuku

**Location:** Located in front of the Samani railway station in Town. 5 min. walk from the conference hall.

**Room Type:** A tourist home offers 10 “tatami” rooms shared by 2-4 persons and 3 single “tatami” rooms. Public lavatories and a small public bathroom.

**Room Charge:** 4,000 JPY per person including breakfast.

**Others:** Payment by cash only. Japanese style dinner is available for 1,300 JPY. Transportation and a ticket to Japanese-style public bath in Apoi Sanso (above) is available free of charge. Laundry machine is also available for free.

### (3) BH Benkei

**Location:** Just in front of the conference hall across the Main street.

**Room Type and Charge:** A small business inn offers 4 single rooms w/ bathroom (5,900 JPY), one twin room w/ bathroom (11,600 JPY), one “tatami” room w/ bathroom for 2 persons (5,600 JPY per person).

**Others:** Payment by credit card can be accepted. Above prices include breakfast. Japanese style dinner is available for 1,500 JPY in the hotel restaurant.

### (4) Oyako-iwa inn

**Location:** In front of the Samani beach. 25 min. walk from the conference hall.

**Room Type:** A Japanese-style tourist home offers 15 “tatami” rooms shared by 2-4 persons. It is equipped w/ public lavatories and bathroom.

**Room Charge:** 5,500 JPY per person including breakfast.

**Others:** Payment by cash only. A good view of beach. Japanese style dinner is available for 1,500 JPY or 2,500 JPY (delicious fish dish).

### (5) Shi-en Center (limited only for students)

**Location:** Located just next to the Apoi Sanso. (i.e., 10-15 min. drive from the conference hall in Town). A shuttle bus service will be available between the Apoi Sanso and the conference hall.

**Room Type:** Youth hostel-type cottage equipped with public kitchen and lavatory. 3 “tatami” rooms for 2-4 persons (preferentially assigned for female students, if any). One large “tatami” room that may accommodate up to 20 persons (assigned for male students).

**Room Charge:** 2,000 JPY per night including ticket for breakfast and public hot-spa in Apoi Sanso. Additional 250 JPY is required for handling fee.

**Others:** Payment by cash only. Self service policy.

## Payment

Payment must be in Japanese yen by Credit Card (VISA or Master only) or Bank Transfer when you register and reserve. For quicker and smoother confirmation of your payment, payment by credit card is strongly recommended. Please fill in the Payment Form below and send it to E. Takazawa by due date. Those who wish to pay by bank transfer are requested to contact to E. Takazawa (takazawa@sc.niigata-u.ac.jp) for information of the bank account.

## Cancellation Policy

Cancellation or reservation change must be submitted in writing to Workshop secretariat (E. Takazawa). In case of cancellation, your payment including the fees for registration, field excursions, banquet and hotel deposit will be refunded after deducting bank charge/commission and cancellation fee as follows.

If cancellation notification is received,

**before July 31**, no charge,

**from August 1 to August 15**, 50% refund of payment,

**after August 16**, no refund.

## Weather

Weather in Samani in this season is moderate. Average day-time temperature during the workshop period (August-September) in Samani is around 20°C. However, weather is variable, please bring a light jacket and rain gear.

## Field Excursions

As mentioned above, a two-day field excursion to the Horoman peridotite will be placed before and after the indoor meeting. (We will repeat the same excursion in order to accommodate large numbers of participants; attendees who wish to see the Horoman peridotite in the field must choose only one of the two times). **In addition**, three post-conference field excursions, (1), (2) and (3) are being planned:

### (A) Horoman Peridotite Field Excursion (Aug. 27-28 & Sept. 1-2)

**Leaders:** K. Niida (Hokkaido), N. Takahashi (Chiba), E. Takazawa (Niigata), T. Sawaguchi (Waseda), T. Morishita (Kanazawa), A. Toramaru (Kanazawa), and others.

#### *Day 1: Trip along the Horoman River*

The first day trip illustrates the major structural frame work and the main lithologies of the Horoman peridotite complex, *i.e.* spinel dunite, harzburgite, spinel lherzolite, spinel-pyroxene symplectite-bearing lherzolite, plagioclase lherzolite, and some mafic-type layers. We will visit several stops along the Horoman River by bus. The transition between harzburgite and lherzolite and the contact of spinel dunite cumulate with the wall harzburgite will be examined as examples of lithological change with mineralogical-geochemical modification generated in the upper mantle. This trip involves a few short walk crossing small cliffs and shallow streams. Consequently, appropriate footgear and shirts with long sleeves are recommended. The bus will pick up participants from each hotel and drop them back to the same hotel.



### ***Day 2: Trip to Mt. Apoi-dake (810.6m)***

The second day trip illustrates the main lithologies of Upper Zone of the Horoman complex, including mafic layers of Type I (GB I) and Type II (GB II) in association with ultramafic suites of plagioclase lherzolite, dunite, and harzburgite with extremely high Mg and Cr signatures. On the northern ridge of Mt. Apoi-dake, we also observe the banding structure between peridotite and mafic layers that is typical of the Upper Zone.

We will walk first 40-60 min. along a forest trail in forest up to the mountain observatory (cottage), which is a rest point with a nice view of the Pacific Ocean (approximately 350 m above the sea level). Some major exposures locate at 500-550 m level. We will take a lunch on the western ridge 'Uma-no-se' of Mt. Apoi-dake with a splendid 360° panorama of the Hidaka mountains. The participants, who are in good physical condition, can reach the final stop at the northern ridge (750-800 m level). It is also enjoyable to stay a day or a half-day around the mountain cottage. The weather will be calm around 20-25°C on sunny days. Normal mountain gear (hiking shoes, shirts, and a day pack for rain gear and food) will be sufficient.

We come back to the same hotel and stay overnight. A shuttle bus is scheduled to leave Samani next morning (Sept. 3) and arrive in the Sapporo/Chitose airport around noon.

## **(B) Post-conference field excursions**

### **(1) Deep-seated plutonic and metamorphic rocks of the Hidaka Metamorphic Belt (Sept. 1-3): Crustal section overlying the Horoman peridotite?**

Leaders: J. Maeda (Hokkaido Univ., Sapporo, Japan), M. Owada (Yamaguchi Univ., Yamaguchi, Japan), K. Arita (Hokkaido Univ., Sapporo, Japan), and T. Yamasaki (Hokkaido Univ., Sapporo, Japan)

The trip begins in Samani and ends in Sapporo/Chitose Airport, Hokkaido around noon on September 3. It is connected to the post-conference excursions (2) and (3) at the Airport.

On this three-days trip to the Hidaka Mountains, we will observe deep-seated plutonic and metamorphic rocks of juvenile arc-like crustal section, Hidaka Metamorphic Belt, which is structurally overlying the Horoman peridotite complex.

Two NS-trending geologic units are distinguished in the Hidaka Mountains, the Poroshiri Ophiolite in the west and the Hidaka Metamorphic Belt (or Hidaka Magmatic Belt) in the east. The boundary of these units is the Hidaka Main Thrust. The Poroshiri Ophiolite is composed of late Cretaceous ophiolitic rocks metamorphosed during the early Miocene to the greenschist- through amphibolite- and granulite-facies, and includes pelitic schists, greenschists, epidote amphibole schists, amphibolites, metacumulates, and ultramafic tectonites (dunites and harzburgites).

The Hidaka Metamorphic Belt, the target of our trip, consists of steeply eastward dipping thrust sheets composed of pelitic-psammitic and mafic metamorphic rocks and

various plutonic rocks of Eocene to early Miocene ages. Igneous intrusives include layered olivine gabbros, heterogeneous gabbros/diorites, and S- and I-type granitoids. The metamorphic grade increases from prehnite-pumpellyite grade in the east through greenschist and amphibolite facies to the granulite facies in the west. Primitive gabbroic complexes are situated in the west (namely deeper level) and felsic ones are in the east (shallower level). Total thickness of the crustal section attains up to 20 km or more. This crustal section is now structurally overlying, but actually in fault contact with, some peridotite (plagioclase lherzolites and harzburgites) complexes including the Horoman peridotite. Origin of the Hidaka Metamorphic Belt has been related to the collision of the Kula-Pacific spreading center against the eastern margin of the Eurasian plate during Eocene time. We can observe the metamorphic and anatectic rocks in the middle and lowest horizons of the Hidaka Metamorphic Belt in Day 1. Lower crustal layered olivine gabbro complex (troctolite, olivine gabbro and ferrogabbro) originated from primitive N-MORB magma and heterogeneous gabbro/diorite complex (gabbro, hornblende-bearing gabbro and hornblende-biotite diorite) formed by the hybridization of mantle-derived N-MORB magma and crust-derived anatectic felsic magma will be observed in Day 2.

*Day 1* (September 1) Samani to Hidaka. Excursion to Shoya (metamorphic rocks and anatectic tonalite of the middle horizon) and Menasyunbetsu (granulites of the lowest horizon of Hidaka Metamorphic Belt). Dinner and overnight at Hidaka.

*Day 2* (September 2) Excursion to Pankenushi (Pankenushi layered olivine gabbro complex and Memurodake heterogeneous plutonic complex, and S-type tonalite of the lowest horizon of Hidaka Metamorphic Belt). Dinner and overnight at Hidaka.

*Day 3* (September 3) After the packing and visiting to the village museum “Hidaka Mountains Center”, we will move to Sapporo/Chitose Airport.

Hidaka is a small village (2,200 population) located in the western foothill of the northern Hidaka Mountains. Accommodation of the Days 1 and 2 is at Hotel Kogenso (western- and Japanese-style rooms), Hidaka. The weather of this time is calm, 20-25°C at daytime, in general. Travel largely by minibus with moderate hikes. Hiking shoes and rain gear are essential.

Maximum number of participants: 16.

Cost: 66,000 Yen. The cost includes a guidebook, hotel accommodation, meals and transportation.

**(2) Hayachine and Miyamori ultramafic complexes in the Kitakami mountains, north-eastern Honshu island (Sept. 3-6):** multi-stage and open-system magmatism in the Ordovician supra-subduction zone ophiolite.

Leaders: K. Ozawa (Univ. Tokyo, Japan) and M. Nakagawa (Geol. Survey of Japan)

This is a tour to the basal ultramafic member of an Ordovician supra-subduction

zone ophiolite, which was thrust over the Silurian and Pre-silurian sedimentary and metamorphic rocks in the Kitakami mountains.

The ultramafic complexes exhibit many peculiar petrologic features, such as the common occurrence of hornblende and the ferric-rich nature of chromites. The ultramafic rocks can be divided into tectonite member characterized by a strong mineral lineation and lattice preferred orientation and cumulate member featuring cumulus textures with minor subsolidus deformation. The tectonite member exhibits diverse lithological variation from fertile lherzolite to very refractory harzburgite and dunite with minor association of pyroxenites and wehrlite. The cumulate member is composed of wehrlite, dunite, and pyroxenites. These ultramafic rocks are intruded by many bodies of hornblende and clinopyroxene hornblende gabbro having various sizes from less than a meter to a few kilometers.

The main target of this field excursion is the contact relationship between the cumulate and tectonite members, well-developed layered structure in a zone of melt focusing in the tectonite, hornblende- and phlogopite-bearing peridotites, field relations between mafic and ultramafic rocks, and field relations with the shallower rock units including Pre-Silurian sedimentary rocks and mafic extrusive and intrusive rocks. Please note that the peridotites are fairly serpentized and also extensively brecciated with local preservation of the original structures.

Excursion course, transportation, and time schedule are as follows:

*Day 1* (September 3) departing Chitose to Morioka by train,  
overnight in Morioka (western-style hotel)

*Day 2* (September 4) the Hayachine ultramafic complex and related mafic intrusive and extrusive rocks  
overnight at Miyamori (Japanese-style inn)

*Day 3* (September 5) the Miyamori ultramafic complex  
overnight in Kitakami (western-style hotel)

*Day 4* (September 6) departing Kitakami to Tokyo by train (Tohoku-shinkansen). The arrival time at Tokyo Station is around noon.

Morioka is a large city in the Tohoku district (280,000 population). Miyamori is a peaceful small village inhabited by 5, 600 people. In early September, the weather will be calm around 25 °C, but the temperature could be higher than 30 °C. Participants are requested to bring rain gear because the weather is quite changeable. We use bus or rent-a-car to get around this region and the most of outcrops are easily accessible from the major roads except for a few localities in the Hayachine region.

Maximum number of participants: 12

Cost: JPY 80,000. The registration fee includes the guidebook to the field excursion, hotel accommodation, meals and transportation.

**(3) Deep-seated xenoliths from the Southwest Japan Arc: Kurose and Takashima, northern Kyushu (Sept. 3-8):** A tour to xenolith localities for peridotite and related rocks on the Japanese island arc (Takashima and Kurose, northern Kyushu island). Leaders: S. Arai (Kanazawa Univ., Japan) and N. Abe (GEMOC, Macquarie Univ., Australia)

This field trip is designed to look ultramafic xenoliths derived from the upper mantle of the Japan arcs. We selected two localities which are easily accessible and where xenoliths are relatively abundant: they are Kurose and Takashima of Kyushu district in the Southwest Japan arc. The xenoliths were carried from the lower crust to upper mantle beneath the arc by alkali olivine basalts. Xenoliths derived from the upper mantle proper and cumulus mantle are predominant in Kurose and Takashima, respectively.

Kurose is a small reef-like rock off Genkai-jima island in Fukuoka City (Hakata Bay). The basalt is 1.1 Ma in age and contains abundant mafic to ultramafic xenoliths (up to 30 cm in size). It is characteristically free of Group II (black-clinopyroxene series) xenoliths and related megacrysts. Cpx-bearing harzburgite is the most predominant, followed by fine-grained Fe-rich lherzolite and dunite. Spinel granulite of lower crustal origin is common.

Takashima is a small island off Karatsu City (Karatsu Bay), and is composed of basal granodiorite of Cretaceous age capped by alkali olivine basalt of 3.0 Ma. Exposures are not accessible and we are checking numerous shore boulders around the islet. Mantle peridotites (lherzolite to harzburgite) are almost absent, and dunite-wehrlite-clinopyroxenite xenoliths of Group I (green-clinopyroxene series) up to 40 cm are abundant. Pyroxenites of Group II and related black pyroxene megacrysts are also very common. Granulite is rarely found as xenoliths, and granitic rocks digested to various extent are very common. If you are lucky enough chromitite xenoliths with nodular texture may be encountered.

Approximate schedule is as follows. Please note that the Day 5 is optional. If you like you can move to Fukuoka City or to any other places in September 6 (Day 5).

*Day 1* (September 3) Sapporo to Fukuoka (plane)

Fukuoka to Genkai-jima Island (ferry)

Stay at Genkai-jima Island (Japanese-style inn)

*Day 2* (September 4) Field work on Kurose Rock

Genkai-jima – Kurose (small boat)

Stay at Genkai-jima Island

*Day 3* (September 5) Genkai-jima to Fukuoka (ferry)

Fukuoka to Karatsu (train or car)

Stay at Karatsu (Western style hotel)

*Day 4* (September 6) Karatsu to Takashima Island (small ferry)

Field work on Takashima island

Takashima to Karatsu (15:30)

Stay at Karatsu (optional)

*Day 5 (September 7) Packing*

Fukuoka (<http://www.city.fukuoka.jp/index-e.htm>) is the largest city of Kushu district with more than 1.3 millions of population. Karatsu is a small city in Saga Prefecture, but is attractive for tourists: you can enjoy a beautiful sandy beach with numerous pine trees (Niji-no-Matsubara beach), traditional Karatsu pottery and Karatsu Castle.

The weather is quite different from Hokkaido due to the difference of latitude. It is usually hot and humid at the beginning of September. The maximum temperature may be higher than 30 degrees Celsius. You are requested to bring rainwear with you. Please note that our trip is highly dependent on weather because we are working on the small rock (Kurose) and shore of the islet (Takashima).

We are sorry to have decided to skip Ichi-no-megata (Megata volcano) of the Northeast Japan Arc for the reason that there are so few numbers of xenoliths expected to obtain there now.

Maximum number of participants: 20

Cost: JPY 120,000 (covering transportation, accommodation, and meals)

**N. B.** Regarding these three post-conference field excursions, in order to be financially reasonable, each of these field trips requires a minimum number of participants. More information and details of the trips will be given in the third circular. If the post-conference excursion(s) is canceled due to too few number of participants the full payment for the excursion will be refunded in the amount of Japanese yen with no bank charge/commission.

## **Transportation to Samani**

Samani is a local town located about 200km southeast of Sapporo, the largest city in Hokkaido. The nearest international airport is Sapporo/Chitose Airport (40 km southeast of Sapporo). Those traveling from overseas by plane are strongly advised to buy a through-way ticket in their countries to final destination, Sapporo/Chitose. This may save air fare considerably. Of course, you may wish to stop in Tokyo or Osaka as well. (There are a few direct flights (KLM) Amsterdam - Sapporo, only 3 flights a week.)

Samani is connected by train and bus from Sapporo/Chitose Airport. Detailed information will be placed on web site and will be provided to all registered participants. Because it will take about 4 hours from the airport to Samani by public transportation, arrival in the morning at Sapporo/Chitose Airport is advised. Furthermore special

shuttle buses will be arranged on August 26 and 28 to pick up participants at the Sapporo/Chitose Airport. The pick-up time will be announced later. For return trip, shuttle buses will be arranged on September 1 and 3 to leave Samani in the early morning and to arrive in the Sapporo/Chitose airport around noon.

## **Money exchange**

In the town of Samani there is **no possibility to exchange foreign currency to Japanese yen**. Therefore, we recommend your exchange of foreign currency in the airport (e.g., Sapporo/Chitose Airport). However, with a Credit Card (VISA, Master, AMEX, Diners Club, JCB), a Debit Card (VISA Electron, Maestro) or a Cash Card (Cirrus, PLUS) you may withdraw money from a cash machine (ATMs) at the post office of Samani.

## **Insurance**

Participants at the workshop and field trips are requested to provide full insurance coverage for themselves.

## **Workshop information on the web**

The Lherzolite Workshop WWW page will be updated on a regular basis from November 2001. All information in this circular will be included as well as the conference themes, more information on the field excursions, and the lists of participants.

<http://earth.s.kanazawa-u.ac.jp/LherzoliteWorkshop2002/>

~~**ONLY ONE DEADLINE: April 30, 2002**~~

**NEW DEADLINE: May 30, 2002**

For registration form

For abstract submission

For all payment

## REGISTRATION & RESERVATION FORM

Please type or print this form and return it by mail or fax to E. Takazawa at Department of Geology, Faculty of Science, Niigata University, 2-8050, Ikarashi, Niigata 950-2181 JAPAN (Fax & Phone: +81-25-262-6114; email: takazawa@sc.niigata-u.ac.jp)

### PERSONAL INFORMATION

Surname: \_\_\_\_\_ Middle initial: \_\_\_\_\_

First name: \_\_\_\_\_ Title: \_\_\_\_\_

Institution: \_\_\_\_\_

Street: \_\_\_\_\_

City: \_\_\_\_\_ State/Province: \_\_\_\_\_

Postal Code: \_\_\_\_\_ Country: \_\_\_\_\_

Preferred mailing address (if any): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone (including country code): \_\_\_\_\_

Fax (including country code): \_\_\_\_\_

E-mail: \_\_\_\_\_

### PRESENTATIONS

Oral Title: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Author(s): \_\_\_\_\_

\_\_\_\_\_

Poster Title: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Author(s): \_\_\_\_\_

\_\_\_\_\_

Contribution of the paper to the proceeding volume is:

(     ) Definite; (     ) Possible; (     ) Unlikely

## ACCOMODATION

Arrival date: \_\_\_\_\_

Departure date: \_\_\_\_\_

Sex: (        ) female; (        ) male

Preferred inns (please indicate by the number listed in the section for accommodation):

First choice: \_\_\_\_\_; room type \_\_\_\_\_

Second choice: \_\_\_\_\_; room type \_\_\_\_\_

Third choice: \_\_\_\_\_; room type \_\_\_\_\_

Last choice: \_\_\_\_\_; room type \_\_\_\_\_

I wish to share the room with: \_\_\_\_\_

I wish to arrive in Samani by:

(        ) Bus from Sapporo/Chitose Airport; (        ) Train; (        ) Car

## FIELD TRIPS:

Please indicate in parentheses your choice in participating in the field tours:

### *HOROMAN PERIDOTITE (select either of them)*

(        ) Pre-indoor meeting (August 27-28)

(        ) Post-indoor meeting (September 1-2)

### *POST-CONFERENCE*

(        ) (1) Deep-seated crustal section in the Hidaka Mts (Sept. 1-3)

(        ) (2) Hayachine and Miyamori ultramafic complexes (Sept. 3-6)

(        ) (3) Xenolith localities (Sept. 3-8)

**N.B.** The post-indoor meeting Horoman field trip overlaps in time with the post-conference field trip (1) deep-seated crustal section in the Hidaka Mts. Therefore, those who wish to attend both the Horoman and the Hidaka excursions must choose the pre-indoor meeting trip for the Horoman. In addition, the post-conference field trip (1) Hidaka Mts. is connected to the trips (2) and (3) on Sept. 3 at Sapporo/Chitose Airport.



**ACCOMPANYING MEMBERS**

If you attend the meeting with accompanying person(s), please fill the followings.

Name: \_\_\_\_\_

Sex: \_\_\_\_\_

Do you wish to share accommodation?    (        ) Yes, (        ) No

Will the accompanying person(s) attend the lectures and field excursions?

Lectures:                    (        ) Yes, (        ) No

Field Excursion:    (        ) Yes, (        ) No

If YES, please indicate which excursion(s) the accompanying person(s) will participate in.

**HOROMAN PERIDOTITE**

(        ) Pre-indoor meeting                    (        ) Post-indoor meeting

**POST-CONFERENCE**

(        ) (1) Deep-seated crustal section in the Hidaka Mts.

(        ) (2) Hayachine and Miyamori ultramafic complexes

(        ) (3) Xenolith localities

## PAYMENT FORM

Please type or print and return this form by mail or fax to: E. Takazawa, Department of Geology, Faculty of Science, Niigata University, 2-8050, Ikarashi, Niigata 950-2181 JAPAN; Fax: +81-25-262-6114

### Registration:

Before ~~April 30, 2002~~: ( ) Regular participant: 25,000 JPY  
 May 30, 2002: ( ) Student: 15,000 JPY  
 ( ) Accompanying person: 5000 JPY

After ~~April 30, 2002~~: ( ) Regular participant: 28,000 JPY  
 May 31, 2002: ( ) Student: 17,000 JPY  
 ( ) Accompanying person: 5000 JPY

Sub total: \_\_\_\_\_ JPY (A)

**Banquet:** 6,000 JPY x ( ) person(s) = \_\_\_\_\_ JPY (B)

**Accommodation (deposit):** \_\_\_\_\_ JPY (C) (=10,000JPY x ( ) room(s))

**Field Excursion:** \_\_\_\_\_ JPY (D) (please check below)

( ) (1) Hidaka; ( ) (2) Hayachine; ( ) (3) Xenoliths

**Total Amount:** (A) + (B) + (C) + (D) = \_\_\_\_\_ JPY

**Payment method:** ( ) Visa Card, ( ) Master Card, ( ) Bank transfer

**For payment by Bank transfer,** those who wish to pay by bank transfer are requested to contact E. Takazawa (takazawa@sc.niigata-u.ac.jp) to ask for the information of bank account.

**For payment by credit card,** please provide the following information.

Card Number: \_\_\_\_\_

Expiration date: \_\_\_\_/\_\_\_\_ (Month/Year)

Name of card holder as it appears on the card (please print in CAPITAL LETTERS).

\_\_\_\_\_

Amount in Japanese Yen (JPY): \_\_\_\_\_

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

Please print your name \_\_\_\_\_