INVITATION
to
NAGOYA, JAPAN
for
THE INTERNATIONAL UNION
FOR QUATERNARY RESEARCH
— INQUA XIX CONGRESS

July 27 — August 2, 2015
at Nagoya Congress Center

The XIX INQUA Japanese Bid Committee
organized by
Japan Association for Quaternary Research,
INQUA Committee of the Science Council of Japan,
and Japan National Committee on INQUA
1. Proposal

On behalf of the Japanese Bid Committee, it is my pleasure to propose to you and the International Council of INQUA a venue for the XIX INQUA Congress in 2015. We propose to hold the Congress at the Nagoya Congress Center, Nagoya, Central Japan, from 27 July to 2 August 2015.

Japan suffered enormous damage from the earthquake and tsunamis of 11 March 2011. We lost thousands of precious lives and numerous beautiful towns and cities. We are rebuilding for the future and deeply appreciate the support we have received from around the world. The Japanese people are sincerely thankful to all who have helped us.

Tsunamis and earthquakes are natural hazards that plague Japan and many other parts of the world. In just the past 10 years they have caused tremendous amounts of damage: Christchurch, New Zealand (2011); Haiti (2010); Chile (2010); Sichuan, China (2008); Kashmir, Pakistan (2005); and Sumatra and coastal areas of the Indian Ocean (2004). Scientists involved in Quaternary studies must contribute their knowledge to help mitigate disasters from hazardous natural processes, not only earthquakes and tsunamis but also volcanic eruptions, landslides, floods, and typhoons. Japan suffers from the full suite of these natural processes and has a long history of scientific research and its application in these areas.

The benevolence of nature has been a key contributor to the rise and development of civilization, and for the current prosperity of large populations in Japan and the rest of Asia. However, environmental changes associated with global warming threaten our societies in the world. The knowledge gained from Quaternary research is invaluable for understanding nature and taking appropriate actions to prepare for climatic change.

“Quaternary Science for Society”

The theme of the 19th INQUA Congress in Nagoya is: “Quaternary Perspectives on Climate Change, Natural Hazards and Civilization.”

The key sub-themes are:

1. Quaternary science for natural hazard mitigation
2. Understanding and quantifying past changes in the Earth to improve projections of future climate, sea-level, and environmental changes
3. Dynamics of the human–environment interaction
4. Developing and integrating new technologies for Quaternary chronology and stratigraphy.

The Nagoya Congress Center (NCC) is a wonderful venue that is ideal for the INQUA Congress. In October 2010, the tenth meeting of the Conference of Parties (COP 10) under the Convention on Biological Diversity was successfully held at NCC. NCC is close to the Nagoya city center and is within 5 to 30 minutes by subway or taxi from most city hotels.
Accommodation ranging from luxurious five-star standard to budget hotels is readily available. We will offer at least 22 field excursions (pre-, mid-, and post-conference) dealing with active faults, tsunami sediments, volcanoes, Pleistocene and Holocene stratigraphy, coastal dunes, glacial and mountain morphology, lacustrine sediments, and archaeology. The excursions cover much of Japan and Taiwan and will provide opportunities for visitors to gain an understanding of the Quaternary environments of monsoonal East Asia and active island arcs.

The City of Nagoya is centrally located in Japan and is easily accessible by air. Central Japan International Airport (Nagoya) is only an hour from the proposed congress venue. Frequent bullet train services offer easy access to Nagoya from other international airports such as Narita (Tokyo), Haneda (Tokyo), and Kansai (Osaka). Transport both within Nagoya city and from Nagoya to other parts of Japan is easy, effective, and comfortable.

The Japanese Bid Committee comprises representatives of the Japan Association for Quaternary Research (JAQUA) and the Japan National Committee on Quaternary Research, a committee of the Science Council of Japan. This bid is supported by the Geological Survey of Japan, AIST, and more than 20 academic societies in Japan. More than 1500 Quaternary researchers in Japan are keenly anticipating the holding of the XIX INQUA Congress in Japan. You can rest assured that we will work hard to deliver exciting scientific and social programs for our visitors.

2. Summary of the proposal

- Venue: Nagoya Congress Center (NCC)  http://www.nagoya-congress-center.jp/english/
- Dates: July 27, 2015 (Monday) to August 2, 2015 (Sunday)
- Main host organizations:
  - The Japan Association for Quaternary Research (JAQUA)
  - The Japan National Committee on Quaternary Research, Science Council of Japan
  - Supported by the Geological Survey of Japan, AIST
- Main theme: Quaternary Perspectives on Climate Change, Natural Hazards, and Civilization
- Field trips: 14 pre- and post-congress trips; 8 mid-congress one-day trips
- Registration Fee:
  - Japanese Yen 50,000 (early), 70,000 (late and on-site), and 25,000 (students and spouses).
  - Registration fee includes abstract and program books, conference bag, conference souvenir, six lunches, and an ice breaker. The congress dinner (Japanese Yen 10,000) is not included in the registration fee. As of proposal, US$1 = JPYen82, €1 = JPYen117.
- Accommodation: More than 100 hotels within 5 to 30 minutes of the venue; prices for a single room per night range from JPYen4000 to 25000.
- JAQUA Supporting program: financial support will be provided to participants from low GDP countries as travel and/or registration fee waiver.
3. Provisional Organization

1. Organizing Committee

Chairperson: Yoshiki SAITO Geological Survey of Japan / AIST
Honorary Chairperson: Arata SUGIMURA INQUA Honorary Life Fellow
Vice Chairperson: Kunihiko ENDO Nihon University
Koji OKUMURA Hiroshima University
Secretary General: Takashi AZUMA Geological Survey of Japan / AIST

Committees and chairperson

Science program Committee: Akira ONO Meiji University
Yusuke YOKOYAMA University of Tokyo
Field Excursion Committee: Takehiko SUZUKI Tokyo Metropolitan University
Muneki MITAMURA Osaka City University
Kazuaki HORI Nagoya University
Local Organizing Committee: Toshio NAKAMURA Nagoya University
Publicity Committee: Masayuki HYODO Kobe University
Takahiro MIYAUCHI Chiba University
Finance Committee: Shuji MATSU’URA Ochanomizu University
QR Host Committee: Makiko WATANABE Tokyo Metropolitan University
Secretary Office: Takashi AZUMA Geological Survey of Japan / AIST

Advisory Board

Chairperson: Keiji TAKEMURA Kyoto University
Member: Haruo YAMAZAKI Tokyo Metropolitan University
Hisao KUMAI Osaka City University (Emeritus)
Hiroshi MACHIDA Tokyo Metropolitan University (Emeritus)
Yoko OTA Yokohama National University (Emeritus)
Tadamichi OBA Hokkaido University (Emeritus)
Eikichi TSUKUDA Geological Survey of Japan/AIST (Director General)

2. International Scientific Program Committee

To be determined in consultation with INQUA Executive Committee
4. The theme of the 19th INQUA Congress

Quaternary science for society: Since 2000, more than 1,500 natural disasters killed more than one million people in the world. Almost half of these deaths resulted from earthquakes and tsunamis; 40% of the world’s natural disasters occurred in Asia, which accounted for 80% of disaster deaths. Mega-disasters alone since 2000 are the 2004 Indian Ocean tsunami, 2005 Kashmir earthquake in Pakistan, 2008 Cyclone Nargis in Myanmar, 2008 Sichuan earthquake in China, and 2010 Haiti earthquake, – accounted for more than 70% of the fatalities, with more than 700,000 deaths.

The knowledge gained from Quaternary research, particularly from past records of unusual events and abrupt changes, is invaluable for understanding nature and taking appropriate actions to mitigate natural disasters. Scientists involved in Quaternary studies must contribute their knowledge to help minimize the effects of disasters from hazardous natural processes, which include not only earthquakes and tsunamis but also volcanic eruptions, landslides, floods, droughts, typhoon/cyclones/hurricanes, and sea-level rise. Japan suffers from the full suite of these natural processes and has a long history of scientific research and its application in these areas. We would like to focus on these issues at the 19th INQUA Congress in Nagoya. Therefore, the theme of the congress is:

**Quaternary Perspectives on Climate Change, Natural Hazards and Civilization**

The key sub-themes are:
1) Quaternary science for natural hazard mitigation
2) Understanding and quantifying past changes in the Earth to improve projections of future climate, sea-level, and environmental changes
3) Dynamics of the human–environment interactions
4) Developing and integrating new technologies for Quaternary chronology and stratigraphy

Potential session topics related to the above sub-themes are shown below. The final session topics will be selected via the International Scientific Program Committee and INQUA commissions.

1.1 Tsunami history in geological records
1.2 Volcanic records for hazard mitigation
1.3 Geo-hazards and environmental problems in urban areas and the Quaternary system
1.4 Extreme climate events and their records
1.5 Island Arc: A link between human society and Quaternary science

2.1 Holocene high-resolution environmental reconstructions
2.2 Antarctic Ice Sheet and Southern Ocean environmental changes
2.3 Global climate variabilities and Greenhouse gases
2.4 Climate and solar cycles and geomagnetic field changes
2.5 Model-data comparisons to understand climate systems
2.6 Biogeochemistry and environmental changes
3.1 Human evolution and cultural adaptation in MIS3 and MIS2
3.2 Emergence and diversity of modern human behavior in East Asia
3.3 Holocene environmental changes and cultural diversity
3.4 Maritime transportation in prehistory
3.5 Late Holocene environmental changes and civilizations

4.1 The Matuyama Chron, the Early Pleistocene: Climate, Environment, Bio and Magnetic
Stratigraphy, and the Climate System
4.2 Tephrochronology (INTREPID Enhancing tephrochronology as a global research tool
through improved fingerprinting and correlation techniques and uncertainty modeling)

5. Outline of the proposed science program

The diagram showing the outline of the proposed science program is on next page.

We propose four types of scientific sessions. They are: plenary sessions, special sessions, topical sessions, and poster sessions.

Each afternoon, there will be a plenary session followed by a special session. These two sessions will cover similar topics or topics closely related to the main theme, one of the four key sub-themes, or other current issues in Quaternary research.

Five subjects for the afternoon sessions will be chosen from among the most current and most important topics in Quaternary research in the world and in Japan.

Plenary lectures will be keynotes given by leading scientists and will introduce the special session that follows. The speakers will be invited by the Organizing Committee. The lectures will address important issues suitable for a large audience.

Topical sessions will be held simultaneously with the afternoon special session. To minimize conflicts, the subjects of the topical sessions will be carefully chosen so as not to overlap with those of the special sessions.

Number and duration of oral presentations:

- Plenary sessions: Two 40-minute talks on each of the 6 days
- Special sessions: Seven 20-minute talks on each of 5 days held in one room
- Morning topical sessions: Fourteen 15-minute talks held in 10 rooms on each of 5 days
- Afternoon topical sessions: Nine 15-minute talks held in 9 rooms on each of 5 days
- In total 47 plenary and special session talks, and 1105 topical session talks

Number and size of posters:

- 200 posters per day = max 1000 posters.
- 1200 mm or 1800 mm wide and ~2000 mm tall
### INQUA Nagoya 2015 Program Outline

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
</table>

#### Mid-congress day trips
- **08:00** - **08:30**: Registration
- **08:30** - **10:20**: Topical Sessions
- **10:20** - **10:40**: Coffee
- **10:40** - **12:30**: Topical Sessions
- **12:30** - **14:30**: Lunch / Coffee
- **14:30** - **15:50**: Plenary Session
- **15:50** - **16:10**: Coffee
- **16:10** - **18:30**: Special Sessions
- **18:30** - **20:00**: Ice Breaker

#### General Assembly 1
- **08:00** - **10:00**: General Assembly 1
- **10:00** - **12:30**: Topical Sessions
- **12:30** - **14:30**: Lunch / Coffee
- **14:30** - **15:50**: Plenary Session
- **15:50** - **16:10**: Coffee
- **16:10** - **18:30**: Special Sessions
- **18:30** - **20:00**: Commission Meetings

#### Poster Sessions
- **08:00** - **10:00**: Poster Sessions
- **10:00** - **12:30**: Poster Sessions
- **12:30** - **14:30**: Poster Sessions
- **14:30** - **15:50**: Poster Sessions
- **15:50** - **16:10**: Poster Sessions
- **16:10** - **18:30**: Poster Sessions

#### International Council Meeting
- **08:00** - **10:00**: International Council Meeting
- **10:00** - **12:30**: International Council Meeting
- **12:30** - **14:30**: International Council Meeting
- **14:30** - **15:50**: International Council Meeting
- **15:50** - **16:10**: International Council Meeting
- **16:10** - **18:30**: International Council Meeting

#### Other Business Meetings
- **08:00** - **10:00**: Other Business Meetings
- **10:00** - **12:30**: Other Business Meetings
- **12:30** - **14:30**: Other Business Meetings
- **14:30** - **15:50**: Other Business Meetings
- **15:50** - **16:10**: Other Business Meetings
- **16:10** - **18:30**: Other Business Meetings

#### Commission Meetings
- **08:00** - **10:00**: Commission Meetings
- **10:00** - **12:30**: Commission Meetings
- **12:30** - **14:30**: Commission Meetings
- **14:30** - **15:50**: Commission Meetings
- **15:50** - **16:10**: Commission Meetings
- **16:10** - **18:30**: Commission Meetings

#### Congress Dinner
- **20:00** - **21:00**: Congress Dinner

### Outline of the Program

The Shirotori (Swan) Room for General Assembly and Plenary Sessions
6. The Nagoya Congress Center

--Ideal for the INQUA Congress

The Nagoya Congress Center (NCC), built from 1987 to 1994, is the largest conference facility in central Japan. Its design motif is a swan (Shirotori in Japanese), poised for flight. This convention complex houses the 3000-seat Century Hall and Event Hall, a huge multipurpose space featuring a 22-meter high ceiling; the International Conference Room, capable of hosting summit-class conferences; the Shirotori Hall for conferences, receptions, and parties; and 22 conference rooms of various sizes, all fully equipped with state-of-the-art equipment.

The Shirotori (Swan) Hall seats 1280 and will be used for the INQUA general assemblies and plenary lectures. More than 10 conference rooms have space for 126 to 360 participants and high ceilings for large high-mounted screens. Enough space for special sessions, topical sessions, and business meetings is available (See following table and figures.).

Spacious lounges, foyers, and corridors around the conference rooms will be used for registration, poster sessions, and exhibits, and for relaxation and informal discussions. Lobbies, an atrium, a café, restaurants, and pleasant gardens are located in and around the building.

Floor and Room Plan for INQUA 2015 at NAGOYA

<table>
<thead>
<tr>
<th>oral sessions</th>
<th>area m²</th>
<th>ceiling height m</th>
<th>capacity seats</th>
<th>use</th>
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<tr>
<td>Shirotori Hall</td>
<td>1250</td>
<td>7.2</td>
<td>1280</td>
<td>plenary sessions and general assembly</td>
</tr>
<tr>
<td>141-142</td>
<td>400</td>
<td>5.0</td>
<td>360</td>
<td>special sessions and topical sessions</td>
</tr>
<tr>
<td>431-432</td>
<td>360</td>
<td>4.0</td>
<td>322</td>
<td>special sessions and topical sessions</td>
</tr>
<tr>
<td>234</td>
<td>315</td>
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<td>topical sessions</td>
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<td>topical sessions</td>
</tr>
<tr>
<td>133-134</td>
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<td>4.5</td>
<td>162</td>
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<tr>
<td>222-223</td>
<td>290</td>
<td>4.0</td>
<td>252</td>
<td>topical sessions</td>
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<tr>
<td>231</td>
<td>150</td>
<td>4.0</td>
<td>126</td>
<td>topical sessions</td>
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<tr>
<th>poster sessions</th>
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<tr>
<td>211-212</td>
<td>455</td>
<td>3.2</td>
</tr>
<tr>
<td>Foyer 1F</td>
<td>250</td>
<td>-</td>
</tr>
<tr>
<td>Foyer 2F</td>
<td>200</td>
<td>-</td>
</tr>
<tr>
<td>Foyer 3F</td>
<td>250</td>
<td>-</td>
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<table>
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<tr>
<th>other businesses</th>
<th>m²</th>
<th>seats</th>
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<tbody>
<tr>
<td>International Room</td>
<td>350</td>
<td>136</td>
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<tr>
<td>213</td>
<td>50</td>
<td>18</td>
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<table>
<thead>
<tr>
<th>meals and banquets</th>
<th>m²</th>
<th>seats</th>
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<tr>
<td>Reception hall</td>
<td>670</td>
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<td>450</td>
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<tr>
<td>Cascade dining room</td>
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<td>-</td>
<td>300</td>
</tr>
<tr>
<td>Reception hall</td>
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</tr>
<tr>
<td>Event Hall</td>
<td>1920</td>
<td>22.0</td>
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Nagoya Congress Center, Facade and Block #1

Nagoya Congress Center, Aerial view. The design motif is a swan poised to fly. Shirotori (Swan) Tumulus next to the congress center is known for a legend of an ancient hero reincarnated as a swan.
7. Field Trips and Activities for Accompanying Members

Field Trips
14 pre- and post-congress field trips and 8 mid-congress field trips are planned as of June 20, 2011 (see next page). These trips cover a wide geographic area from Hokkaido in northernmost Japan to Taiwan, and focus on broad topics of Quaternary research. Climatic and environmental diversity as well as neotectonic and Pleistocene and active volcanism will be featured. Participants will be exposed to leading-edge science, and also given opportunities to experience the nature, culture, and history of Japan. Additional field trips will be prepared by the time of the congress.
Pre-congress and Post-congress Field Trips

A-1. Tephrostratigraphy and tephrochronology in Hokkaido: Implications for understanding eruption processes and the history of tsunami hazards (5 days)

Leaders: Mitsuhiro Nakagawa, Yugo Nakamura and Takeshi Hasegawa
Cost: JPY 80,000 (US$ 940), from Hakodate to Kushiro by bus

Hokkaido is situated at the junction between two arc-trench systems, the NE Japan and Kuril arcs, both of which have seen intense volcanism since the late Miocene. We will focus on various types of younger volcanoes, calderas (Shikotsu, Akan and Kutcharo), volcanic complexes (Taisetsu-Tokachi volcano group), and post-caldera volcanoes (Tarumai, Me-Akan and Atosanupuri). These volcanoes erupted tephras, and the resulting tephra deposits are widely distributed in Hokkaido. We will investigate these deposits to reconstruct eruption and magmatic processes. In Hokkaido, severe hazards result from not only volcanic eruptions but also large earthquakes. We will also focus on tsunami deposits sandwiched by tephra along the Pacific coast and snow-melting lahar deposits from the Tokachi volcano.

A-2. From the Pacific coast to the high mountain permafrost in Hokkaido (5 days)

Leader: Kazuomi Hirakawa
Cost: 100,000 JPY (US$ 1,180), from Obihiro to Sapporo by bus

The many tsunami sediments due to tsunamigenic earthquakes in the Kuril subduction zone in the past 6,000 years will be examined carefully. We will also study the drastic changes in the fluvial environment that have resulted from deforestation and cultivation over the last 100 years (human impact on terrestrial ecosystems). We will examine Pleistocene fluvial landform development and marine terraces since Oxygen Isotope Stage 9, with special reference to tephrochronology. Welded tuff and tuff landforms around Taisetsu volcano, and permafrost and active periglacial phenomena in the mountain top area of Taisetsu will also be observed.

A-3. Obsidian sources and Upper Paleolithic technology in Hokkaido (6 days)

Leaders: Masami Izuho and Keiji Wada
Cost: JPY 120,000 (US$ 1,410), from Obihiro to Sapporo by bus and air

Twenty-one sources of geological obsidian are known on the Hokkaido Island, which is situated on the boundary between the Pacific oceanic plate and two continental plates, the North American (Okhotsk) and the Eurasian (Amurian) plates. We will visit the Shirataki, Oketo, and Tokachi-Mitsumata sources. Additionally, we will visit several archaeological sites located in the vicinity of these geological obsidian sources and visit the museums that house the abundant archaeological collections from the sites.

A-4. Trans-Tohoku Island Arc, Volcanism, Tectonic evolution, and Landslide Disaster in Northeast Japan (5 days)

Leaders: Hiroshi Yagi, Tsutomu Soda and Toshifumi Imaizumi
Cost: JPY 100,000 (US$ 1,180), from Shonai to Shonai by bus

Participants will be able to take in the Quaternary evolution of the northeast Japan arc, tracing its transverse profile from the Pacific to the Japan Sea sides of Honshu Island. Early-to-late Quaternary calderas, pyroclastics and widespread tephas as time-markers distributed in and around the Ou-Backbone Range (Volcanic Front) will be shown. Neotectonics reflecting geological structures of Plio-Pleistocene age in the inner-arc basin and the Japan Sea coast should be of particular interest to participants. Participants will also visit the mega-scale earthquake-induced landslide of 2008.
A-5. Influences of tectonic and eustatic sea-level changes on sedimentation: Changes in depositional environments of the Cenozoic Oga Peninsula, NE Japan (4 days)

Leader: Masaaki Shirai
Cost: JPY 70,000 (US$ 820), from Akita to Akita by bus

Along the coastline of the Oga Peninsula, Akita, NE Japan, the record of sedimentation since the opening of the Japan Sea can be viewed. In particular, six shallow marine sedimentary cycles that correlate with MIS 12 to 5 (ca. 450 to 80 ka) can be observed along the Anden Coast. Along the coast, we can also recognize changes in the depositional environment and the influences of eustasy and tectonics on sedimentation.

A-6. M9.0 2011 Tohoku earthquake from Japan Trench and Tsunami disasters (5 days)

Leaders: (To be announced later.)
Cost: JPY 100,000 (US$ 1,180), from Sendai to Sendai by bus

The 2011 Tohoku Earthquake, or Off the Pacific coast of Tohoku Earthquake, occurred on March 11, 2011. The magnitude M9.0 was the largest in Japanese history. It generated a huge tsunami and devastating damages took place in the coastal areas on the Pacific. More than 15000 fatalities and 7000 missing are reported. Participants will examine the traces of 2011 and older earthquakes and tsunamis.

A-7. Quaternary tephrostratigraphy in the Kinu River Lowland (3 days)

Leader: Takehiko Suzuki
Cost: JPY 70,000 (US$ 820), from Tokyo to Tokyo by bus

The Kinu River lowland, 100 km north of Tokyo, is geologically situated to the east of a volcanic zone composed of the Haruna, Akagi, Nikko, Takahara, and Nasu volcanoes. Participants can observe many well-studied proximal and distal tephras from not only these volcanoes but also very distant volcanoes. These tephras cover inland fluvial terraces and hills; we will also discuss the relationships between landform development and paleo-environmental changes, such as climate and sea-level changes.

A-8. Tectonically uplifted forearc basin fill on the Boso Peninsula (5 days)

Leaders: Hiroko Okazaki, Fujio Masuda, and Yoshiki Saito
Cost: JPY 100,000 (US$ 1,180), from Tokyo to Tokyo by bus

The Boso Peninsula, east of Tokyo, is a unique in the world for its tectonics and Quaternary sedimentary system. Here, thick and almost continuous Quaternary forearc basin fill, from hemipelagic deep-sea sediments to shallow marine sediments, crops out. Depositional sequences are well analyzed stratigraphically, with linkage to Quaternary sea-level changes. Pleistocene sediments with emerged Holocene successions are exposed at wonderful shoreline outcrops commanding a splendid view of the Pacific.
A-9. Active tectonics and volcanism in the Izu-Tanzawa Collision Zone (4 days)

Leader: Takahiro Miyauchi and Takehiko Suzuki  
Cost: JPY 70,000 (US$ 820), from Tokyo to Tokyo by bus  
The Izu-Bonin Arc on the Philippine Sea plate has been colliding with the Japanese Island Arc on the Eurasian plate since the middle Miocene at a relative convergence rate is 3–4 cm/year. The vigorous Quaternary crustal activities in this Izu-Tanzawa collision zone, which are characterized by rapid fault movements, explosive volcanisms, and distinctive seismicity, have generated scenic and spectacular landforms. Participants will be guided to several areas to observe and enjoy representative active fault features of the Kozu-Matsuda fault and the Tan-nafault associated with 1930 Kita-Izu Earthquake (M7.2), as well as coseismic uplifted marine terraces along the coast and volcanic bodies related to explosive tephric ejections from Mt. Fuji and the Hakone Caldera volcano, based on recent results from trench and seismic reflection/refraction studies.

A-10. Mountain Geomorphology in Central Japan (5 days)

Leaders: Tatsuto Aoki and Yoshihiko Kariya  
Cost: JPY 100,000 (US$ 1,180), from Nagoya to Nagoya by bus  
Glacial-periglacial landforms and landslides are widely present in the Japanese Alps (2000-3000 m ASL) because this mountain range has long been affected by rapid uplift and seismo-volcanic activities, as well as by the humid climate. To discuss the Quaternary glacial, periglacial, and paraglacial histories of the Japanese Alps as mid-latitude humid mountains, we will visit interesting sites such as the Tateyama volcano, Mount Shirouma-dake, Kamikochi Valley, and Mount Kiso-komagatake. Participants will enjoy not only the alpine and subalpine landscapes but also the Japanese rural atmosphere with hot springs.

A-11. Influences of climate changes and human activity on the San-in coast over the last millennium (5 days)

Leaders: Toru Tamura and Yoshinori Kodama  
Cost: JPY 80,000 (US$ 940), from Nagoya to Nagoya by bus  
The coastal geomorphology of the San-in district, along the southern Japan Sea coast, has evolved in response to climate changes and human activity over the last 1,000 years. The coastline exhibits several migrating barrier dunes, formed by the winter monsoons. Drastic changes in sediment discharge have been caused in some catchments by iron mining, which started during the Medieval period. This field trip will attempt a source-to-sink examination of the San-in district via visits to river catchments, ruins of iron mines, and coastal habitat, as well as to several coastal barriers that show varying responses to climate changes and human activity.
A-12. Quaternary volcanism and the use of tephrachronology in southern Japan to study the natural and human history of this region (5 days)

Leaders: Hiroshi Moriwaki, Shinji Nagaoka and Mitsuru Okuno
Cost: 90,000 JPY (US$ 1,060) from Kagoshima to Kagoshima by bus and ferry boat
Numerous volcanoes and volcanic products can be found on Kyushu Island, southern Japan, including huge calderas, active stratovolcanoes, sheets of ignimbrites, and extensive tephra-fall deposits. First, we will view volcanoes and associated landforms and examine the stratigraphy and chronology of tephra deposits. We will see the spectacular Aso caldera in central Kyushu and the Sakurajima stratovolcano in southern Kyushu. Because the latter has been erupting since 1955, we may witness an eruption. Second, we will examine the well-developed marine terraces, which have been dated by using tephrachronology, in Miyazaki and on Tanegashima Island, and visit archaeological sites that have been dated in the same way. Finally, we plan to visit Yakushima Island, a World Heritage Site famous for a gigantic ancient cedar called Jomon-sugi.

A-13. Modern, Holocene, and Pleistocene coral reefs in the Ryukyu Islands (7 days)

Leaders: Yasufumi Iryu, Chuki Hongo and Marc Humblet
Cost: 150,000 JPY (US$ 1,760) from Nagoya to Nagoya by air and bus
The Ryukyu Islands comprise an island arc that extends from Tane-ga-shima to Yonaguni-jima. Most of the islands are rimmed by modern coral reefs and covered with Pleistocene reef-complex deposits. We will observe the biota, sediments, and topography of the modern corals reefs at Ishigaki-jima, South Ryukyus, where more than 350 species of coral have been reported. Then, we will visit Okinawa-jima, the largest island in the Central Ryukyus, to observe the Pleistocene carbonate sequence, in which the initiation and development of the coral reefs of these islands can be seen.

A-14. Quaternary Tectonics of Taiwan (7 days)

Leaders: Wen-Shan Chen and Meng-Long Hsieh
Cost: 85,000 JPY (US$ 1,000) from Taipei to Taipei by bus and air
The accretionary prism of Taiwan lies above the collision and subduction zones between the Eurasian and Philippine Sea plates. This field trip will aim to show the singularity of the Chichi earthquake rupture on September 20, 1999, the Morakot Typhoon debris flow deposits, and the Quaternary evolution of the Taiwan orogenic belt.
Mid-congress One-day Field Trips

**B-1. Paleoseismological study based on earthquake traces excavated at archaeological sites in Kinki**

*Leader: Toshikazu Yoshioka*

*Cost: JPY 10,000 (US$ 120) Transportation: Bus*

In the Kinki area around Kyoto, there are many densely distributed active faults that have caused large earthquakes in this populated area since the prehistoric age. Over several decades, combined paleoseismological and archaeological studies have identified many earthquake traces at archaeological sites. We will visit several of these archaeological sites that have been deformed by active faults.

![Faulted Konda Tumulus (Aerial photo by GSI)](Image)

**B-2. Tectonic geomorphology and traces of tsunami-generating earthquakes around Lake Hamana**

*Leaders: Osamu Fujiwara, Masatomo Umitsu and Eisuke Ono*

*Cost: JPY 10,000 (US$ 120) Transportation: Bus*

Lake Hamana is a brackish lake incised into the basement rocks that include the Jurassic accretionary complex. It faces the Nankai trough and provides excellent records of the tectonic and climatic histories and related changes of human life since the Late Quaternary period. Late Pleistocene marine and fluvial terraces (up to 70 m in height) reflect the active tectonics of this area. The water conditions and the coastal landforms of the lake have been strongly controlled by sea-level changes and crustal movements. Traces of historical earthquakes (M~8) and associated tsunamis that occurred along the Nankai Trough can also be observed in this area.

![Land improvement on the delta, northern Hamana Lake (AD 1773)](Image)

**B-3. Surface rupture associated with the 1891 Nobi earthquake and tectonic geomorphology along the Neodani fault**

*Leaders: Heitaro Kaneda and Atsumasa Okada*

*Cost: JPY 10,000 (US$ 120) Transportation: Bus*

The 1891 Mw 7.5 Nobi earthquake, one of the largest inland earthquakes in Japanese written history, was caused by the rupture of the left-lateral Neodani fault and other adjacent faults in the Mino Mountains, north of Nagoya. The ~80-km-long surface rupture was associated with a left-lateral offset of up to ~8 m, and there is a ~6-m-high fault scarp at Midori, Motosu City, Gifu Prefecture, which is well-known as a result of the impressive photograph of it that was taken immediately after the earthquake. We will visit traces of the 1891 surface rupture, including the fault scarp and trench preservation hall at Midori, as well as a variety of geomorphic signs of repetitive surface faulting along the Neodani fault.

![Neodani fault](Image)

**B-4. Geomorphology of active fold scarps along the Yoro-Kuwana-Yokkaichi fault zone generated by an historic, large earthquake**

*Leader: Toshihiko Sugai and Tatsuya Ishiyama*

*Cost: JPY 10,000 (US$ 120) Transportation: Bus*

The Yoro-Kuwana-Yokkaichi fault zone, ~30 km west of metropolitan Nagoya, is well-known for generating the historic, M~7.7 earthquake in 1586, based on many drilled boreholes and seismic reflection data. Our visit will include sites of coseismic fold scarps, which grew during the historic earthquake, outcrops of deformed Quaternary strata above blind thrusts, and the 138 Tower Park in Kiso-Sansen Park, from which participants can easily grasp the overall geology and geomorphology of the Nobi sedimentary basin and uplifted mountains.

![Aerial view of the fault zone](Image)
B-5. Lake Biwa and Lake Suigetsu: high-resolution climatic record sites

Leaders: Keiji Takemura, Takeshi Nakagawa and Yasufumi Satoguchi
Cost: 15,000 (US$ 180) Transportation: Bus

Lake Biwa is the largest and oldest lake in Japan. While the neighboring basin Lake Suigetsu has varved sediments from the past 150 kyr, Lake Biwa has a continuous sedimentary record of the last million years. Therefore, examination of studies of the two basins will help us understand Quaternary climate changes and tectonics at several time scales.

B-6. The Denjo landslide and Geology of the Ontake volcano, Nagano, central Japan

Leader: Yoshihiro Takeshita
Cost: JPY 8,000 (US$ 90) Transportation: Bus

Ontake volcano, with an altitude of 3,067 m, is the second highest volcano in Japan. This volcano consists of the Older Ontake volcano (Middle Pleistocene) and the Younger Ontake volcano (Late Pleistocene). The activity of the Ontake volcano was revealed by means of volcanostratigraphy, tephrostratigraphy, and K-Ar age-dating of lavas. The Denjo landslide, which was triggered by the 1984 earthquake, occurred on the southeastern slope of Ontake volcano.

B-7. Geology and Quaternary environments of the Paleolithic site of Tategahana in Nojiri-ko (Lake Nojiri), Nagano, central Japan

Leaders: Yoichi Kondo, Yoshikatu Nakamura and Yoshihiro Takeshita
Cost: 7,000 (US$ 80) Transportation: Bus

The Nojiri-ko Excavation has been on-going since 1962 at the Tategahana Paleolithic Site, to reconstruct the natural environment and human activity during the Last Glacial Stage. The Nojiri-ko Formation comprises fluvial and lacustrine sediments and has yielded many fossil remains and artifacts. The most important excavated remains are stone implements and bone tools. A spiral flake that was crushed from the humerus of a Naumann elephant, Palaeoloxodon naumanni, was obtained from the Nojiri-ko Formation. The collected mammalian fossils come from the Naumann elephant, Yabe's Giant Deer, and other animals.

B-8. Prehistoric obsidian mining sites at Takayama area, Nagano Prefecture

Leader: Akira Ono
Cost: 7,000 (US$ 80) Transportation: Bus

Nagano Prefecture, central northern Japan, is one of the most concentrated areas of geologic obsidian outcrops and archaeological sites of Paleolithic and Jomon age. In particular, Takayama has unique obsidian mining sites with about 200 mine-pits that resemble bomb craters on the Mushikura mountain slope ca. 1,500 m above sea level. Most of these mine-pits belong to the later part of the Jomon (ca. 3,500 cal BP). Takayama is an obsidian center for both geologic and archaeological research. There are two facilities, one is a museum of experimental archaeology for obsidian use and craftsmanship, and the other is the Meiji University Center for Obsidian and Lithic Studies.
Nagoya City and its vicinity: Nagoya Castle is a symbol of political and economic center of central Japan since 1600. The Tokugawa museum displays the history of a branch of Shogun-clan in Nagoya. TOYOTA Commemorative Museum of Industry and Technology exhibits the history of TOYOTA. Many local kilns around Nagoya produce all kinds of pottery, stoneware, and porcelain.

Kyoto and Nara: Old Japanese capitals between 710 and 1868. Countless temples and shrines, historic houses and streets, culture and arts excite all visitors. In present days Kyoto and Nara are still the center of traditional religion and philosophy in Japan. Green hills beside the cities are also great attraction.

Ise and Shima: More than 1300 year old Ise Jingu is one of the most important shinto shrines in Japan dedicated to the sun goddess and the cereal goddess. Traditional wooden shrines are dotted among pristine forests with streams of the clearest waters. Shima is a promontory into the pacific with many deep embayments and beautiful coves where best-quality pearls are cultivated.

Mount Fuji: The highest peak of Japan is a Holocene strato volcano reaching 3,776 m. The volcanic edifice is surronded by beautiful lakes, water falls, springs, lava flows and meadows. Going around Mount Fuji is a great fun with panoramic views from sea shore to vista points atop foothills and near-by volcano. The ascent to the summit takes about 10 hours and requires an overnight trip.

The trips above cost JPYen 7,000 to 15,000. More trips will be arranged.

Short courses by volunteer groups of Nagoya citizens:
Japanese tea ceremony, flower arranging
origami (traditional paper craft)
The cost will be minimal
Other cultural and sports activities:
professional baseball
professional soccer football
traditional and modern theaters.
Tickets cost a few thousnads Yen. Avialability depends on the schedules.
# 8. Estimated costs and price structure

The provisional budget is presented in the table below. All units are in Japanese Yen. As of April 25, 2011, US$ 1 = JPY 82.

## Registration fees:
- Early registration fee: JPYen 50,000
- Late / on-site registration fee: JPYen 70,000
- Students and accompanying persons: JPYen 25,000

The budget is based on 700 paid registrants. Low GDP country participants (50 to 100) will receive a registration fee waiver.

An "ice breaker" social event, six lunches, and coffee break drinks with snacks are included in the registration fee, but the congress dinner (JPYen 10,000) is not included in this fee.

Field excursion guidebooks will be included as PDF files on a CD-ROM attached to the program book. A printed guidebook for each trip will be given to those who participate in that trip.

<table>
<thead>
<tr>
<th>Income</th>
<th>Amount Japanese Yen</th>
<th>details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration fee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>normal (after April, 2015)</td>
<td>32,000,000</td>
<td>Estimate on total 800 participants. Registration fee waiver for 100 persons</td>
</tr>
<tr>
<td>early (until April, 2015)</td>
<td>7,000,000</td>
<td>70,000 * 100 persons</td>
</tr>
<tr>
<td>student and accompanying person</td>
<td>20,000,000</td>
<td>50,000 * 400 persons</td>
</tr>
<tr>
<td></td>
<td>5,000,000</td>
<td>25,000 * 200 persons</td>
</tr>
<tr>
<td>Congress Dinner</td>
<td>2,500,000</td>
<td>10,000 * 250 persons</td>
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<tr>
<td>Financial supports</td>
<td>15,500,000</td>
<td>Science Council of Japan, JAQUA, Nagoya City, and others</td>
</tr>
<tr>
<td>Total</td>
<td>50,000,000</td>
<td></td>
</tr>
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</table>

## Expenditure

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount Japanese Yen</th>
<th>details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venue</td>
<td>10,013,600</td>
<td>Nagoya Congress Center (7 days)</td>
</tr>
<tr>
<td>Printing</td>
<td>1,500,000</td>
<td></td>
</tr>
<tr>
<td>Conference bag and others</td>
<td>2,000,000</td>
<td></td>
</tr>
<tr>
<td>Food and Drink</td>
<td>13,600,000</td>
<td></td>
</tr>
<tr>
<td>Travel support</td>
<td>6,000,000</td>
<td>For invited lecturers, researcher from low GDP countries, and early-career scientists</td>
</tr>
<tr>
<td>Staff employment on site</td>
<td>2,680,000</td>
<td></td>
</tr>
<tr>
<td>Excursion</td>
<td>1,500,000</td>
<td></td>
</tr>
<tr>
<td>Administrations</td>
<td>12,000,000</td>
<td></td>
</tr>
<tr>
<td>Reserve</td>
<td>706,400</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50,000,000</td>
<td></td>
</tr>
</tbody>
</table>
9. Transportation and Accommodation

The Nagoya International Airport (NGO) is served by frequent direct flights from Asia, Europe, and North America. More than 10 Japanese cities are also served from NGO. Tokyo-Narita (NRT), Tokyo-Haneda (HND), and Osaka-Kansai (KIX) airports are conveniently connected to Nagoya by frequent bullet trains (Shinkansen) departing every 10 minutes.

Most trains from airports stop at Nagoya Station. Nagoya is conveniently served by an efficient network of suburban railroads, subways, and taxis. It is a 25-minute train ride from Nagoya Station to the Nagoya Congress Center, and 5 to 30 minutes to hotels. Subways are very convenient. There are many taxis and by sharing it is not very expensive.

There are more than 100 hotels offering almost 20,000 rooms in Nagoya. Guests can choose from five-star luxurious suites at international hotels to $50 budget rooms. Around the Kanayama terminal, which is only 5 minutes from the Nagoya Congress Center, there are almost 1,000 rooms in several hotels. Most hotels are within 20–25 minutes of the conference venue.

NGO: Central Japan International Airport

NGO: International flights: Frankfurt, Helsinki, Detroit, Bangkok, Beijing, Shanghai, Hong kong, Seoul, Taipei, and many more. Domestic flights: Sapporo, Narita, Fukuoka, Kagoshima, Okinawa and many more.
The area between Nagoya Station and Sakae (below) is Nagoya's center of business and shopping. Many hotels, shops, cafe, and restaurants are located. Also there are extensive underground shopping malls associated with subway stations. The malls are ideal for strolling for shopping and dining in hot or rainy summer days. Hotels, shops, restaurants, and offices are all equipped with quiet and mild airconditioning. It is hot in summer in Nagoya, but inside buildings and houses are always comfortable.

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>categories</th>
<th>number of Hotels</th>
<th>number of Rooms</th>
<th>rates (JPYen)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Class</td>
<td>7</td>
<td>2,715</td>
<td>15,000--58,000</td>
</tr>
<tr>
<td></td>
<td>Comfort</td>
<td>11</td>
<td>2,422</td>
<td>10,000--15000</td>
</tr>
<tr>
<td></td>
<td>Standard</td>
<td>34</td>
<td>5,844</td>
<td>7,000--10,000</td>
</tr>
<tr>
<td></td>
<td>Economy</td>
<td>65</td>
<td>8,930</td>
<td>4,000--7,000</td>
</tr>
</tbody>
</table>

The rates above are for single occupancy. Double occupancy often costs 1.5 to 2.0 times of the rates above.

Light blue, yellow, orange, and white lines are respectively for JR bullet train (Shinkansen), JR local train, private suburban trains, and subway. Rectangular and circle on the lines are stations.
10. Outreach and public relations

Nagoya is the center of a very rich agricultural and industrial area that is positioned on Quaternary sediments. The images on page 12 and 21, and the geologic map below clearly demonstrate the environment. Extensive rice fields are located on Holocene coastal alluvial plains and along major rivers. Middle to Late Pleistocene uplands are ideal for farming, factories, and cities. Three major auto manufacturers (Toyota, Honda, and Mitsubishi) are located around Nagoya, supported by abundant surface and ground water, a large labor pool (i.e., a large population that can supply the necessary labor), and port facilities. The population of Nagoya city is about 2,200,000, while the population of the Nobi Plain around and including Nagoya is about 10,000,000.

People in this area know well the benevolent nature of the Quaternary and the Quaternary environments, but they also have suffered repeated floods, surges associated with typhoons, and offshore and onshore large earthquakes, which have seriously damaged the region over the past 100 years.

The Nagoya Congress Center is located on the former shoreline of the Holocene high sea stand at the foot of the MIS 5 marine terrace riser. The riser marks the inland extent of the surges caused by a catastrophic typhoon in 1959; this typhoon killed 5000 people on the lowland to the west and south of the riser. Therefore, the venue is an ideal place to present and discuss our knowledge of the past and plans for the future.

Local researchers and students as well as the general population will be interested in our Quaternary research and the INQUA Congress. The organizers will publicize our science to local governments, industries, and wider communities and will organize public sessions on environments and hazards. The outreach will be tremendously beneficial to the people of the Nagoya area.
11. Weather in July

It is usually hot and humid at Nagoya in July-August thanks to the summer monsoons. The city is very well air-conditioned. Unless you stay outside for long time, the heat and humidity is not a problem at all. When you are in the heat, we advice to take much water and sweat a lot. For visitors from countries of cool summers, it may take a while before their cooling system gets acclimatized to the heat of Japan. Monthly precipitation varies 30 to 500 mm. Heavy rainfall takes place by typhoon or seasonal rain fronts.

![Daily high, average, and low temperature at Nagoya, July 16th through August 15th in 2006-2010. Low temperature is usually accompanied by heavy rain. Data from Japan Meteorological Agency.](chart.png)
12. Additional catering and support plans for participants

Language support: Nagoya City, through the Nagoya Convention and Visitors Bureau, will offer language support and advice to Congress participants. Volunteer citizens will serve as interpreters and guides at the conference venue and at nearby subway stations.

Handicapped and disabled access: The train and subway stations and the Nagoya Congress Center are barrier-free for the handicapped and disabled. Volunteers will be available if non-professional assistance for the handicapped and disabled is required. Professional assistance and care will be considered on request.

Day care: Care for small children is being discussed by the organizers. The experience gained from the Bern congress will be evaluated, and care will be provided if there is a demand for it.

13. Entry visas to Japan

Depending on their nationality, participants may or may not need to apply for an entry visa before entering Japan. Visa information is available at the Ministry of Foreign Affairs website [http://www.mofa.go.jp/j_info/visit/visa/index.html] for participants to determine whether they will need a visa. If a participant requires an entry visa, the secretariat of the XIX INQUA Congress will facilitate the application process for the participant by issuing all of the necessary documents for invitation and guarantees. Once all of these documents are delivered to the applicant, the time required for issuance of the visa after application is approximately 5 working days as long as there are no particular problems with the application. This timeframe may vary depending on the Embassy / Consulate General and the travel plans of the participants. We will advise all participants to apply for their visas, if needed, well in advance of traveling to Japan.

The logomark of the Japan Association for Quaternary Research (JAQUA: see next pages) and a cartoon drawn for JAQUA by Shunji Sonoyama, a famous artist known for a series of comics featuring a paleolithic family.
14. The Japan Association for Quaternary Research

The Japan Association for Quaternary Research, JAQUA was founded in 1956. We celebrated our 50th anniversary in 2006 and successfully organized an international symposium to celebrate this anniversary, entitled “Quaternary Environmental Changes and Humans in Asia and the Western Pacific”, which was held at the Geological Survey of Japan, AIST, in Tsukuba, Japan from November 20–22, 2007, with ~150 participants from 16 nations. Three special issues were produced from this symposium, two published by Quaternary International and one published by the Journal of Quaternary Science.

The parent body of this association was the "Sub-committee for Quaternary Research, the National Committee for Geology, the Science Council of Japan", from 1952–1956; its aim was to communicate with the International Association for Quaternary Research (INQUA) and promote domestic Quaternary research. The Association has always been fundamentally interdisciplinary and multidisciplinary, and its membership therefore consists of a wide range of specialists in many disciplines. Initially, it had only 204 members, but membership has increased annually, reaching 1000 in 1972 and over 1800 in ~2000. Currently, we have about 1400 members. We hold an annual 3–5 day meeting that includes a 3-day meeting for oral and poster presentation with interdisciplinary discussions and a 1- or 2-day excursion. We also hold many regularly scheduled and supplemental symposia as necessary.

The association's journal, The Quaternary Research, has been published quarterly since 1965. We increased the number of issues of the journal to five times a year in 1989, and to six times a year in 1999; at least one issue each year is a special edition. We also produce many special publications.

Relationship with INQUA
The Association has a close relationship with INQUA. For example, the INQUA Commission on Tephrochronology was proposed and established by Dr. Kunio Kobayashi and the inter-congress symposium was held in Tokyo in 1964. Since then, we have hosted many international meetings. Japanese Quaternary researchers have attended every INQUA Congress since 1936. The number of Japanese participants at recent INQUA Congresses is always among the top five countries. Furthermore, Japanese Quaternary researchers have acted as formal and executive members or the president of INQUA commissions. For example, Prof. Yoko Ota and Prof. Koji Okumura served as Vice-President of INQUA in 1995–1999, and 2007–2011, respectively.

HONORARY LIFE FELLOWS OF INQUA from Japan
Prof. Shoji Horie, Prof. Nobuo Ikebe, Prof. Minoru Itihara, Prof. Arata Sugimura, Prof. Naotsune Watanabe, Prof. Torao Yoshikawa
President of JAQUA: Prof. Kunihiko Endo
Vice-Presidents of JAQUA: Prof. Akira Ono and Prof. Keiji Tanimura
Past President of JAQUA: Prof. Hiroshi Machida
Publications of JAQUA 50th Anniversary National Symposium


Publications of JAQUA 50th Anniversary International Symposium


List of publications by Japan Association for Quaternary Research and National Committee on Quaternary Research of Science Council of Japan

Japan Association for Quaternary Research, ed. (1996) Inventory of Quaternary Outcrops -Tephras in Japan-. Japan Association for Quaternary Research, 352p.
Japan Association for Quaternary Research, ed. (2001) Natural Environment and Humans in the Quaternary -Entry Paths of Flora, Fauna and Humans toward the Ryukyu Islands and Southern Kyushu-. Japan Association for Quaternary Research, 65p.

Ota, Y. (1992) Last Interglacial Shoreline Map of Japan, 12,000,000, 1 sheet. (Japanese Working Group for IGCP Project 200)
The "Lake Suigetsu 2006 Varved Sediment Core" project, or "Suigetsu Varves 2006" for short, is a multinational collaborative research project based around the sediment core taken from Lake Suigetsu [soo-ee-get-soo], central Japan, in summer 2006. The project will establish a radiocarbon calibration model for the Late Pleistocene (10,000 - 50,000 BP) based on terrestrial material, free of marine reservoir effects, recovered from annually laminated lacustrine sediment. The project will also produce quantitatively reconstructed climate changes of the monsoon regions for the last 150,000 years using high or ultra-high resolution proxy records. The project will therefore contribute to international scientific endeavour in using radiocarbon-based information to determine timing and rates of environmental changes and to understanding past changes in the global carbon cycle.

URL: http://www.suigetsu.org
HOT RESEARCH TOPICS from JAPAN

Chiba Section, Japan
Proposed type site of boundary of the Lower-Middle Pleistocene

**L-M Boundary**

Byakubi Volcanic Ash

Sedimentation Rate
2-4m / thousand years

(Green: normal, Red: reverse, Yellow: intermediate)

(INQUA Subcomision on Quaternary Stratigraphy of Asia and Pacific Region, 1992)

(INQUA Subcomision on Quaternary Stratigraphy of Asia and Pacific Region, 1992)

(IUGS Secretariat, 2007)
HOT RESEARCH TOPICS from JAPAN

Land of Tephras

A long-lasted tephra study advanced Quaternary Science in and around the Japanese islands, unveiling the history of this active island arc, paleoenvironment change and human activity. We can see more than several hundred tephra layers and can feel awesome contribution to Quaternary Science.

Representative tephra outcrop so-call Baumkuchen, showing frequent explosive eruptions at Mihara basaltic volcano, Izu-Oshima island

Buried torii (a traditional Japanese gate at the entrance of Shinto shrine) by volcanic ash in Sakurajima island, Kyushu

A thin glassy volcanic ash named Aira-Tn Tephra, the most well-known widespread tephra dated at ca. 29 ka, exposing in Toyama 800 km from the source caldera

Mt. Fuji
Prepared by

The XIX INQUA Japanese Bid Committee

Chairperson: Yoshiki SAITO
Vice-chairpersons: Kunihiko ENDO and Koji OKUMURA
Board Members: Takashi AZUMA, Akira ONO, Takehiko SUZUKI,
Makiko WATANABE, and Yusuke YOKOYAMA

Printed on July 15th, 2011 by the Japan Association for Quaternary Research

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Phone: +81-29-861-3895, Fax: + 81-29-861-3747
E-mail: inqua2015-k@m.aist.go.jp

Past INQUA congress venues. Countries that hosted INQUA once or twice are in green.