HOPE for Our Earth from Yokohama

Saving the Planet in Yokohama

38th Session of the IPCC* in Yokohama, March 2014

*IPCC: An intergovernmental organization established in 1988 by the United Nations Environment Programme (UNEP) and World Meteorological Organization (WMO). Its purpose is to bring together the latest scientific findings on climate change for widespread, general use.
Warming of the climate system is unequivocal


Plenary Assembly of the IPCC in Yokohama

The 38th session of the Intergovernmental Panel on Climate Change (IPCC) will convene in Yokohama in March 2014 to formally approve a report produced by one of the IPCC’s three working groups.

This is Working Group II, whose main task is to compile the latest scientific findings on climate change impacts, adaptations, and vulnerabilities.

Organization of the IPCC

IPCC

Plenary

Scientific bases

Assesses the climate system and climate change (Sweden, September 2013)

Working Group I (WG I)

Impacts, adaptations, vulnerabilities

Assesses impacts and adaptation options sector by sector (ecosystems, society, and socioeconomic systems) (Yokohama, March 2014)

Working Group II (WG II)

Mitigation options

Assesses ways of countering climate change (mitigation options) (Germany, April 2014)

Working Group III (WG III)

Task Force on National Greenhouse Gas Inventories (TFI)

Planning and altering body established to oversee the inventorying of individual countries’ greenhouse gas emissions and removals.

Saving the Planet for Future Generations

The IPCC concluded in its Fourth Assessment Report in 2007 that “warming of the climate system is unequivocal.” We must bequeath to future generations a safe environment in which to live, and that means properly understanding the information published by the IPCC and taking action in Yokohama.

A message from Mr. Satoshi Furukawa, Astronaut, JAXA (Japan Aerospace Exploration Agency)

The Earth as seen from space had an overwhelming presence. I was strongly struck that the Earth was a system keeping a perfect balance, with us humans as one part of that balance.

I also felt the importance of air and water. On the space station, what is taken for granted on the Earth must be artificially created.

Our Earth is irreplaceable. I invite you to join me and think about what we can do to pass our rich environment onto the next generation.

Satoshi Furukawa

Born in 1964 in Yokohama.

While working as a medical doctor, Dr. Furukawa saw a recruitment notice for astronauts, which brought back his childhood dream. That’s when he decided to give it a try. In 1999, he was selected by the National Space Development Agency of Japan (JAXA of today) as a candidate for a Japanese astronaut aboard the International Space Station (ISS). He was approved as an astronaut in 2001.

In 2008, Dr. Furukawa was appointed to the position of a long-term crewmember aboard the ISS. The launch of a Soyuz on June 8, 2011, sent him on a mission aboard the ISS that lasted until his return on November 22 of the same year.

Aside from assisting the commander as a flight engineer, Dr. Furukawa conducted scientific tests aboard the ISS based on his background as a medical doctor. He invited the public to watch for a total of 367 days, a record for a Japanese astronaut (excerpted from the webpage of the Japan Aerospace Exploration Agency, JAXA).
### A vision of the future with climate change

Climate change has already begun to have an impact. Rising world temperatures may utterly transform landscapes and cultures.

#### In Yokohama...

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will Yokohama's famous pork dumplings be made from corn flour?</td>
<td>If severe droughts occur in the regions from which Japan imports its wheat, the dumpling wrappers in which Yokohama shumai are wrapped may have to be made from corn instead of wheat flour.</td>
</tr>
<tr>
<td>Cherry blossom viewing in early March?</td>
<td>The cherry trees traditionally blossom between late March and early April in Yokohama, but some forecasts suggest that, in a 100 years time, they'll bloom a month earlier. That means people will still be celebrating Hinamatsuri on March 3 when it’s Hanami time.</td>
</tr>
<tr>
<td>Sea bus services along Nihon Odori Street?</td>
<td>The coastal landscape could be transformed if climate change causes sea levels to rise, turning coastal areas of the city into Venice-like scenes.</td>
</tr>
</tbody>
</table>

#### In Japan...

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soaring food prices</td>
<td>As Japan depends on imports for around 60% of its food supplies, food prices may soar, forcing families to tighten their belts come dinnertime.</td>
</tr>
<tr>
<td>No reds and golds in autumn</td>
<td>Experts predict rising temperatures could delay the onset of autumn and make the familiar autumnal foliage less beautiful.</td>
</tr>
<tr>
<td>Nights under mosquito nets?</td>
<td>Mosquitoes carrying infectious diseases such as dengue fever are forecast to spread, so the day may come when people have to sleep under mosquito nets.</td>
</tr>
<tr>
<td>No more sandy beaches?</td>
<td>If sea levels rise, Japan may lose its sandy beaches. More powerful typhoons are also forecast to approach its shores, wreaking damage over a wider area.</td>
</tr>
</tbody>
</table>

#### Globally...

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and water shortages</td>
<td>Yields of many crops will fall and over a billion people may suffer water shortages in the 2080s.</td>
</tr>
<tr>
<td>Increased risk of famine</td>
<td>More people, especially in Africa and West Asia, are expected to face the risk of famine.</td>
</tr>
<tr>
<td>Changes to ecosystems</td>
<td>Plant and animal distributions are projected to change. Many species will face the risk of extinction, and most ecosystems will be unable to remain stable.</td>
</tr>
<tr>
<td>Disappearance of glaciers</td>
<td>Glaciers on land and ice stored in ice sheets will melt and small mountain glaciers will disappear.</td>
</tr>
<tr>
<td>Rise in sea levels</td>
<td>Melting ice and the expansion of seawater as it warms may cause sea levels to rise and threaten major cities.</td>
</tr>
</tbody>
</table>

**Extreme weather**

Storms, forest fires, droughts, floods, heat waves, and hurricanes may become more severe, impinging on all aspects of life, including food resources, infrastructure, and communications.

**Rise in temperatures due to climate change**
Why will climate change happen? Let’s look at the mechanism behind this phenomenon and the current state of the Earth.

The Earth should stay at a suitable temperature, but...  
Greenhouse gases such as carbon dioxide and methane keep the Earth at a suitable temperature by radiating some of the heat emitted from the Earth’s surface. This is known as the greenhouse effect. Without this effect, the Earth would continue to lose heat and the temperature would fall to approximately -19°C. But if the greenhouse gases in the atmosphere increase, heat that would otherwise be radiated into space remains trapped on Earth and the atmosphere rapidly gets hotter. This is what drives climate change.

The trade-off for the convenience of modern-day life...  
While the process of industrial development that began two centuries ago has given us a convenient society, heavy use of fossil fuels such as oil and coal has resulted in large emissions of greenhouse gases into the atmosphere. The IPCC warns that we will face serious difficulties if the concentration of greenhouse gases continues to increase, and reports that it is crucial that efforts be made to reduce greenhouse gas emissions for the next 20-30 years.

*2.7°C increase over 100 years in Yokohama  
The global average air temperature rose 0.85°C between 1880 and 2012, while the increase in Japan was approximately 1.15°C. Due in part to the heat island effect experienced in urban areas, however, the increase in Yokohama was about 2.7°C.* The IPCC forecasts that the global air temperature will rise between now and around 2100 (by an annual average of 0.3°C - 4.8°C), and estimates that the global average sea level will rise by up to 0.82 m.

*Source: Japan Meteorological Agency, Climate Change Monitoring Report 2012

Yokohama’s carbon dioxide emissions by sector (FY2011)  
In Yokohama, the residential sector is a major source of CO₂ emissions.

Change over time in concentration of carbon dioxide in atmosphere  
Global carbon dioxide concentration is rising by the year.

Air temperature change between 700 and 2100 (observed and forecast)  
Some forecasts predict a rapid rise in air temperature from 2000.
Climate change won’t go away overnight, but there are still things we can do now to help. Here are a few changes we can make to our everyday lives to safeguard tomorrow’s environment.

### What can we do now?

#### Mitigation action we can take now

**To mitigate climate change...**

It is important to switch to a low carbon lifestyle by taking steps to reduce emissions of the greenhouse gases that cause climate change.

### Rethinking how we travel

- Use of community bikes
- Adoption of electric and hybrid vehicles

Instead of travelling by car, try to cycle and use public transport such as buses and trains instead. Using electric vehicles can also help reduce carbon dioxide emissions.

### Power and energy consciousness

- Think of ways you can save electricity and conserve energy around the home, such as by replacing electrical home appliances with more efficient ones and eliminating wasteful use of electricity.
- Suggestion of eco-friendly lifestyles through the "Yokohama Eco-Katsu" campaign
- Installation of home energy management systems to make energy use more obvious

### Use of renewable energies

- Greenhouse gas emissions can be reduced by using electricity generated by clean energies such as solar and wind power and biomass.
- Installation of photovoltaic and solar heat systems in the home

### Reduction of waste emissions

- Follow the “reduce, reuse, and recycle” philosophy to produce less household waste. This reduces the amount of energy required to transport and dispose of waste too.
- Draining of kitchen refuse
- Use of own reusable shopping bags and water bottles

### Dressing to keep cool and warm

- Choose clothes and materials that help you keep warmer or cooler, depending on the season. Follow the "cool biz" and "warm biz" dress codes at work so that the air conditioning can be turned down.
- Promotion of room temperature settings of 28°C in summer and 20°C in winter
- Promotion of "cool biz" and "warm biz" dress codes
We need to think and act now to preserve the environment for our children and generations to come.

It is crucial that we adopt new lifestyles to mitigate and adapt to climate change.
Yokohama is pursuing a variety of initiatives. We are thinking and acting together to save the planet and save the future.

FutureCity Initiative
The aim of this initiative is to build a city that is accessible and rewarding for everyone by, for example, addressing environmental issues and the needs of a very aged society.

Yokohama Midori Up Plan
Projects and initiatives are being pursued to halt the shrinkage of greenery and bequeath a “lush green Yokohama” to future generations by focusing on three core strategies: preserving woodland, preserving farmland, and creating green space.

Yokohama 3R Dream Plan
Joint action is being pursued by residents, businesses, and the authorities to reduce the amount of waste produced. The aim is to reduce the total volume of waste produced and resources consumed by at least 10%* and emissions of greenhouse gases produced by waste processing by 50%* by 2025.

*2009 Ratio

Yokohama Smart City Project
Various technical elements will be combined to create a sustainable, low-carbon society and establish new lifestyles.

Yokohama Eco School (“YES”)
This participatory project aims to foster the development of a diverse learning network provided by citizens’ action groups, businesses, universities, the authorities, and other organizations to help people throughout the city learn more about the environment and climate change issues.

Yokohama Eco-Katsu
This campaign aims to provide tips that people can easily follow in their everyday lives to increase eco-awareness and eco-activities among residents.

Yokohama b Plan
(Yokohama Biodiversity Action Plan)
This plan is designed to preserve, regenerate, and create biodiversity, and so make nature and wildlife a familiar and enjoyable part of everyday life.

HOPE for our Earth from Yokohama
Saving the Planet in Yokohama

For inquiries, please contact:
Yokohama Climate Change Policy Headquarters
1-1 Minato-cho, Naka-ku, Yokohama 231-0017 Japan
tel. +81-(0)45-671-2622 fax. +81-(0)45-663-5110

http://www.city.yokohama.lg.jp/ondan/english