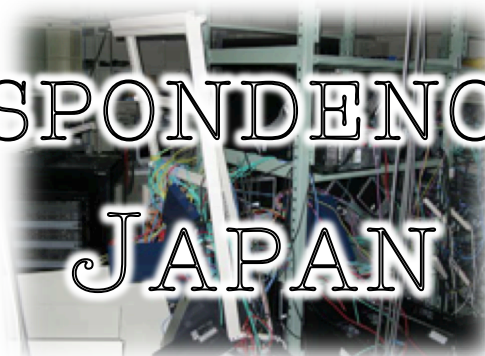


CORRESPONDENCE FROM JAPAN



Taken by Prof. Kr



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A number of former Gordon group colleagues and friends were in Japan when tragedy struck on Friday, March 11, 2011. This special edition of "a Gordon state of mind..." is a compilation of information they wish to share and personal perspectives on the catastrophe that struck the nation of Japan.

3/11 or The Earthquakes in Tsukuba

On March 11, 2011, I was in my office at AIST when we felt the initial shakes. They were not so uncommon as we occasionally had had similar ones in the past. However, this time there were many of them in a fairly short period, and finally a strong one came. It toppled monitors and scattered paper previously neatly arranged on some tables, turning them into a mess like a paper lake on the floor. Of course, the main concern of a theoretician is whether or not the computers and hard disks are fine, constantly throbbing in one's mind in time of disasters. Cell phones had a feature to check the magnitude and we had 6, while other prefectures north were 7 (Japanese scale); the epicenter had 9.0, as we learned later and the tsunami tidal waves were terrible. As after that there were no quakes, we started to clean the mess expecting that this is it for today.



But it was not; shakes returned, electricity went out (hard disks?!), except for emergency lights. The shakes grew stronger so people started to leave the office on the 7th floor. When I was exiting the room, the largest shake came and nearly knocked me on the floor. Wearing a safety helmet (Mark once wore the same when he visited me), I spent some time in the corridor with fellow survivors and finally left the building. Most people gathered outside waiting for further development. There was some more trembling but nothing large. As there was no electricity, it was time to go home.

There, the famous IKEA bookshelf collapsed.



Home appliances fell on the floor. Cups and plates went to pieces. There was no water and electricity at home (water supply at home was cut for 3 days; electricity for about 12 hours). Many people slept in their cars as there was fear for further shakes. Many Japanese cell phones have an earthquake warning feature: they receive a signal and start violently vibrating when an earthquake is detected nearby, which usually happens about 10 seconds before the shakes come to the places where the phone is. The next few days were accompanied by the sound of frequent helicopters flying between the capital and the badly affected prefectures to the north.



The next day I went to work. In some places tiles on the ground were cracked; however, no building as far as I could see collapsed or was considerably damaged in Tsukuba; the worst external damage could be seen in some tiles that had fallen or the air conditioners half hanging from the remaining fixture.

No doubt, inside the buildings the damage was considerable.

Below, our secretary's office is shown; with the contents of the shelves scattered all over the floor. The computer room was the living nightmare of a computational scientist.



Many heavy racks with dozens of blades danced around the floor, but most stood on their feet. One of my racks with shelves collapsed entirely; many computers fell off other shelves. It is a good practice to use the protective railings, which prevent this; unfortunately, the shelf on the left collapsed with the railings. The extent to which the nodes are broken is not known, as the room is still not powered.

The next two working days (following the weekend) after the quake I went to work to find no electricity in outlets except the ceiling lights and of course no network; and no water supply including toilets. There was not much point to work except to arrange fallen objects. Luckily there seemed to be little bodily harm. On the second day there was a radioactive cloud reaching us and Tokyo from the plant; the radiation level was up about 10

times; it went back to the level of a twofold increase (i.e., we now have 0.15-0.20 $\mu\text{Sv}/\text{hour}$) over the usual level, which is what we have now. According to all published standards, this poses no health hazard though.

On the third day I stayed at home and on the fourth I went to work. The rooms got electricity and the toilets water (no lifts though). However, due to the lack of the electricity supply we were asked to keep the consumption to the lowest level possible; all computer nodes were down; no heating, and even the printers were to be turned off. I had to sneak in and print one page with the list of GAMESS files that I needed for the major GAMESS update.

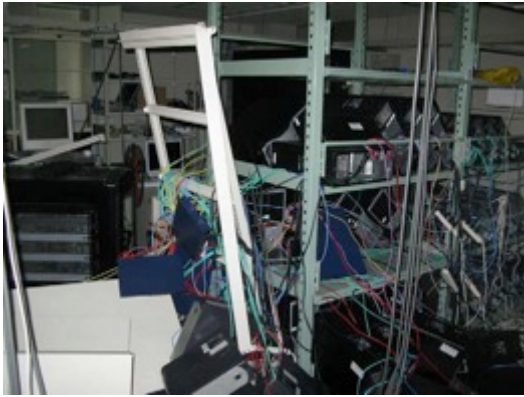
Even hot water was a big luxury, so these days were spent in ice-cold rooms (comfortable to the US standards, about 15 C or 60 F).

The GAMESS update with the latest FMO development had to be conducted in these very conditions; hands numb with cold, the file server sneaked in from the computer room to the office and turned on to compile the code; printers banned. With the lifts not working, I have been able to get some good leg exercise to climb to the 7th floor. And of course the Damocles' sword of the Fukushima nuclear plant expected to blow up every minute.



To this day, we do not know when we can turn on the compute nodes to see how many of them are damaged. It is likely that for weeks or months we are not going to be able to use our clusters. The desktops are to be turned off by the end of each day, so connecting to them from home is impossible, further hindering work.

A few words about everyday life: The Japanese government has imposed the tightest censure on any news about the nuclear plant; this presumably has saved Japan from the chaos: if dozens of millions of people living in Tokyo and surrounding areas would run for their lives the apocalypses would be literal. Some people went to their relatives or hotels to remote parts of Japan; some foreigners left. This was a tiny part of the total number though.



Most stayed, and the shops and restaurants were working as usual, except when there was no water in the first few days (water was distributed in one's own containers with long queues, and in some taps outside buildings there was water supply for short periods; people would gather there as in the old days around the wells).

There was practically no price increase – amazing I should say. Some goods have disappeared; those are bottled water, milk, bread, instant foods such as soups in cups, napkins and petroleum. The latter was and still is the largest problem, as the supply is very meager; when petroleum appears, it is sold in a short time and people have to queue for hours. There was nothing like a famine threat as almost all other foods were sold as usual in Tsukuba. The sight of empty bread and instant food shelves is something to leave a deep impression in people's minds. On the other hand, bakeries were selling bread; a sign was posted informing of the maximum allowed number of goods in limited supply per person. Some large supermarkets had long queues, because people from smaller towns came to buy their food; but overall the system has withstood this severe test very laudably, powered by the strong citizens devoid of panic despite good reasons to have it. To this day, we are asked to save electricity as much as possible. Many prefectures have scheduled power blackouts (ours was exempted by its official who argued that Ibaraki suffered large damage). People have been developing new skills to live with this: in order for the food in the refrigerator not to rot thermal gel is commonly used. Packs of it are frozen when there is power and then they retain low temperature for a while.

Meanwhile, many thousands of people lost their lives and home. Hundreds of thousands were evacuated from the 30 km zone around the power plant and have to live in temporary camps, possibly never being able to get their now radioactive belongings.

Personally I am perplexed by the government buying robots for use in the damaged nuclear power plant in France and Germany. For so long we have seen the “cool” Japanese robots capable of various tricks, some developed at AIST. Are they only good to entertain the “kids” and serve as a shopping window of the scientific workshop showing off to the general public what science is for?

My own impression was that the sign to reduce extravagant consumption should be taken; the drive to constantly buy new cell phones, new cars, new “gadgets” and the excessive food intake are the deplorable sights in prosperous societies. Disasters give us the chance to understand the value of simple food, plain water, the shelter above and the very life itself; let us learn. Every moment is precious to fulfill one's purpose in life.

Dmitri G. Fedorov
Tsukuba, Japan
March 20, 2011

Perspective from Osaka

I am in Osaka, more than 800 km from Miyagi prefecture, so that rather weak shaking of buildings occurred and a few people noticed that there was an earthquake. We were unaffected in Osaka aside from postponing some events and meetings.

My parents are in Miyagi prefecture, the south part of Miyagi and about 40 km far from Sendai. It was very hard for me to contact them. Phone lines were completely broken and TV news was the only source of earthquake information. Two days later, I could contact my younger brother with my cell-phone's e-mail. The next day, I could talk with my father by cell phone after many trials. The normal phone did not work because the land phone needed to have electricity.

My parents' place is close to mountains and about one-hour-drive from the Pacific Ocean, so that they fortunately were untouched by the Tsunami but felt strong shaking of their house. Some walls and some glasses were broken. They lost electricity and water. Fortunately, they could stay in their own house and could sleep. The problem was the fact that they are old (77 and 80 years old). Another piece of luck is the fact that my younger brother lives in Miyagi prefecture and it takes only 30-minute drive to reach their house. Even though he also lost electricity, he could have water. He brought some water to my parents every day, but he had another problem: he could not get gasoline for his car. Because of strong shaking, all stores were closed and nothing could be bought. After a few days, some stores were open, but you had to wait in line for a long time. He wasted three hours to get gasoline but he could not get any in the first day. Next day, he went to a gas station early morning and finally got only 20-liter gasoline.



Ten days passed, but my parents still do not have water, though they have electricity now (it became available after one week). Sendai airport was broken by the tsunami and the railway of Tohoku bullet trains were broken in many places. I have no idea how to reach my parents. Today (March 23rd), a newspaper reported that Tohoku bullet trains may become available by the end of April.

Prof. Kono is one of the chemistry professors in Tohoku University. He told me that a chemistry building cannot be used for a while and the university does not have any teaching classes in April. Some lectures could be started in May. So, he stays at his own house and still has no water. He wrote to me by e-mail.



As many Japanese told you, the national spring meeting of chemistry could not be held in Kanagawa University (just south of Tokyo). Several meetings also could not be held this spring, such as the applied physics meeting in Kanagawa. A German collaborator, Dr. Manz, postponed his visit to Japan in April and May and the German ambassador moved from Tokyo to Osaka mainly because of nuclear-plants' trouble.

In a situation such as this, I feel that you need have the following things:

- LED light (solar battery is better)
- Phone machine that needs no electricity
- Hand-held charger machine for cell phones

Of course, you need food and water, but this depends on the availability of food and water in your town or city as your own food and water supply runs out quickly.

Aftermath in Kiryu

As you may know, we experienced the largest earthquake of our life on March 11. The seismic intensity (not magnitude) was 6 here in Kiryu.

At that time, I was in my office at Gunma University. One of my computers fell from the shelf to the floor and the HDD was damaged and another has not booted up since then. The heavy bookshelves also moved but did not fall down. I think the recent earthquake reinforcement for our building worked well.

In contrast, my husband who took a day off and stayed home had a very dreadful time. Our condominium is on the 11th floor and in an area that experienced the strongest seismic intensity in Gunma Prefecture. A piece of furniture (tall chest) fell down, water overflowed the toilet, and 70% of our dishes and cups were broken. He told me that he just squatted down in a corridor. According to him, he felt a blast of wind go through the room just before the strong earthquake.

Since that day, our life has been hard though it has been much better than those of the huge number of victims in the Tohoku area. The problems (maybe most of you know very well) are as follows. In addition, the small or medium size of aftershocks took place several times in a day and scared us a lot.

- a) Train connections to Tokyo (or anywhere else) were not running, so Kiryu was isolated for a couple of days.
- b) Gasoline stations did not sell gasoline so we could not drive a car. Therefore we have decided to take bicycles instead of a car, which may be good for the environment and also our health.
- c) Some kinds of foods (milk, rice, eggs, natto, etc.) or toilet papers have disappeared from markets.
- d) We have 3-hour power cuts everyday in the Kanto area, which is Tokyo and its surrounding provinces (except the 23 downtown wards of Tokyo).

All are tough but the last one is hardest as this keeps equipment from working and many things are undoable as you can imagine. The water supply is also shut off during the power cuts. I keenly realized how we depend on the electricity in our life. While the power was out, our life was like the one of the ancient time.

Furthermore, as you may know, Japan's new school year begins in April, so we greatly worried about the effect of power cuts on the laboratory classes, practices using computers etc. in the new semester. In fact, we have made special programs for the classes.

I should note one good thing here though. We had to go up the stairs to 11th floor in the nighttime once, and we were ready to walk in the darkness but a very bright moonlight helped us, which was a fantastic time :). Also, we have learned we must save power in our everyday life.

About one month has passed after the day and our life *at least in Kiryu* has become much better than before. The JR line has started to run this week and the shortage of gasoline has been dissolved now. The best thing is the 3-hour power cut has not occurred for the past 10 days. Furthermore the power cutting will be stopped at the end of April according to the recent news. It is very convenient that we can use electricity! I can do the single point energy calculation of large molecules as before! We are very glad to hear the good news.

The present serious problem is the radiation leak to the air, sea and land not only of Japan but all countries around Japan, about which all of you may be concerned. The effect has brought about many serious problems in various areas such as the life of the people in the towns of Fukushima, our drinking water, farm and marine products and the life of the producers. We see on TV everyday that the various measures are carried out to stop the damage with great help from the US and other countries but the situation seems still dangerous.

Incidentally, my face is covered with a mask, glasses and a hat when we are commuting by bicycles so probably I look like a stranger :) Maybe we are too nervous for the invisible radiation though...

Now I think we have to always think about the huge number of those suffering and thank many countries around the world for helping us so much as the US has in various ways.

Takako Kudo
Kiryu, Japan
April 20, 2011

A Closing Note from the Center: Sendai

Our university is located at the city center of Sendai so we don't have as serious damage, compared to the seaside of Sendai where the tsunami struck. All modern buildings here are safe, but some old houses collapsed. I happened to be in the car during the earthquake, but I could not continue driving. The big earthquake persisted more than 5 minutes. Some people saw that tall buildings were swinging like a metronome during the earthquake.

We suffered from shortage of water, foods, and gas, but the lifeline has recovered to some extent. The water supply has recovered this week, though the gas is still stopped. Sendai is planning to make temporary houses to accept people from the devastated area.

The emergency of Fukushima nuclear power plant currently seems to settle down thanks to the brave fight of firemen, military, and Tokyo electric power.

Hiroyuki Tamura
Sendai, Japan
March 23, 2011