

The Science Circle

“Fukushima”

presented by Fumon Crystal

Saturday, December 16th at 8 AM PST

The Future of Fukushima

-The reconstruction and the radiation protection-



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la Médiathèque de la Radioactivité

<Abstract>

A magnitude 9.0 earthquake on 11th March 2011 resulted in a tsunami and nuclear accident.

There are ***still*** over 80 thousand evacuees in 2017.

They come to grips with the reconstruction and decontamination after the disaster and enjoy their everyday life. There are the dignified smiling people and the diverse cultures in Fukushima. For the renewal of the agriculture and the fishery, scientists, engineers, and local media's are collaborated in the science communication and the public understanding of science on the radiation and the health care from the external and internal exposure based on the evidence.

This Science Circle session provides the actual cases how to live in the low dose waiting zones according to the major concepts by ICRP publications and the reconstruction of the social infrastructures.

Presenter visualized such efforts as evidences of history at “la Médiathèque de la Radioactivité” under consultation of Hajime Nishimura.

The presenter will guide you through the Fukushima exhibition at 4000m Sky of Edu Portal, The Science Circle.

Note: Presenter uses text chat in English.

<Participant>

Aaron Wexhome (seaturtle008), Astrid (Folcard), Beragon Betts, Dirlandaa Pfeffer, Hades Nostram, Joseph Bard (science24), Kharissa Indigo, Lovely Kass (StarKass), Mademoiselle de Staël (ErikaNilson), Tagline, Talliver Hartnell, thief Burner, OperativePhoenix, Scire Gaea, Theo Finney, Tony Carbonel Stark (mithrilx9), Jes Cobalt, Chantal Jager (Nymf Hathaway), Yan Lauria, Fumon Crystal

[07:45:50] Chantal Jager (Nymf Hathaway): Hi Jes, Fumon and Dirlandaa ☺

[07:45:54] Fumon Crystal: ♥

[07:51:07] Jawesome (Jes Cobalt): hi all

[07:58:15] Chantal Jager (Nymf Hathaway): Hello Theo ☺

[07:58:24] Theo (Theo Finney): hey

[07:58:42] Theo (Theo Finney): is this the fujishima guided tour?

[07:58:43] Chantal Jager (Nymf Hathaway): Hi Astrid ☺

[07:58:52] Chantal Jager (Nymf Hathaway): Yes, Theo

[07:58:59] Chantal Jager (Nymf Hathaway): we start in a few minutes

[07:59:06] Theo (Theo Finney): ty and good evening to all

[08:00:58] Chantal Jager (Nymf Hathaway): On a note: Hades will film and create a compilation out of all the excursions... as an introduction film about the sc region

[08:01:06] Chantal Jager (Nymf Hathaway): Hi Scire, good to see you

[08:01:15] Astrid (Folcard): Hi all, I was curious to know more about how Japan has been progressing

[08:01:39] Chantal Jager (Nymf Hathaway): Fumon, we are yours when you like to start
 [08:01:49] Fumon Crystal: ok I see
 [08:02:02] Chantal Jager (Nymf Hathaway): Science ☺
 [08:02:16] Fumon Crystal: yay
 [08:02:53] Chantal Jager (Nymf Hathaway): This creation is above Yan's parcel.. I do not have landingpoint abilities here, excuse me Scire
 [08:03:09] Fumon Crystal: yep
 [08:03:33] Fumon Crystal: I wait 2 or 3 min
 [08:03:38] Chantal Jager (Nymf Hathaway): ok
 [08:03:41] Fumon Crystal: yep
 [08:05:45] Fumon Crystal: ok I start now. thank you, Chantal



<Field Trip>

[08:05:52] presentation by Fumon: Hello Science Circle!
 [08:05:54] Chantal Jager (Nymf Hathaway): ♥
 [08:06:03] presentation by Fumon: Thank you for coming and offering this SC Session.
 For the long term decommissioning of broken reactors after NPP accident on March 2011,
 Big help from the scientists and engineers all over the world is needed.
 [08:06:20] presentation by Fumon: And for long term decontamination of evacuation zone,
 Science communications are needed.
 I will report non-exaggerated facts as a neighbor of Fukushima.
 [08:06:33] presentation by Fumon: (NPP = Nuclear Power Plant)
 Discuss free here, plz.
 [08:07:24] Fumon Crystal: and.. click each panels and you can see more informations by the message
 here

[08:08:04] presentation by Fumon: In Fukushima, 3 districts weather forecast are announced, called Hama(seaside), Naka(central), Aizu(west mountain side).
NPP is located in Hama(seaside) district.

[08:08:40] Fumon Crystal: here is the starting point

[08:08:44] Fumon Crystal: come here plz:)

[08:09:45] Fumon Crystal: this section is for the basic knowledge of radiation

[08:10:16] Fumon Crystal: I am sure SC members already know these

[08:10:48] Fumon Crystal: this section is for the basic knowledge of radiation

[08:10:54] Fumon Crystal: I am sure SC members already know these

[08:11:01] Chantal Jager (Nymf Hathaway): Not everyone participated in your previous presentation, Fumon. Great you run another.

[08:11:59] Fumon Crystal: someone says : Cesium is invisible... but ... I made this panel of Cs-133 here

[08:13:17] Fumon Crystal: <Robotics - Carnegie Mellon University in Three Mile Island, and , IRID at Fukushima>

[08:13:27] Tagline: Hello Jes & Crystal

[08:13:32] Astrid (Folcard): The fission reactor in Gabon has been running for billions of years. is there anything we can learn from it on making durable reactors?

[08:14:07] Fumon Crystal: I did not know of Oklo. Yan told me it.

[08:15:23] Yan Lauria: small reactor cooling by Natural circulation is instinctly safe

[08:16:28] Yan Lauria: Fukushima reactor lost cooling by loss of electricity

[08:17:22] Fumon Crystal: thank you for explanation , Yan san

[08:17:24] Fumon Crystal: <Engineer of TEPCO(Tokyo Electric Power Company) , HITACHI and GE(General Electric)>

[08:18:22] Chantal Jager (Nymf Hathaway): I see a lot of activity Fumon... but what are they actually trying... get it to work again, or manage the damage?

[08:18:22] Fumon Crystal: and.. Koriyama City in Fukushima is very wellknown as the music city in Japan

[08:19:07] Fumon Crystal: yes , in fact , that is the hard way, Chantal

[08:19:46] Fumon Crystal: <ICRP(International Commission on Radiological Protection), and ALARA principle(As Low As Reasonably Achievable)>

[08:20:25] Fumon Crystal: this is the most important knowledge for the radiological protection for Fukushima now

[08:21:18] Fumon Crystal: Fukushima citizens read this in detail ICRP Publication 111
(<http://www.icrp.org/publication.asp?id=ICRP%20Publication%20111>)

[08:21:54] Fumon Crystal: this is ... how to live after the nuclear accident.

[08:22:24] Fumon Crystal: next section plz

[08:24:21] Fumon Crystal: this section is all Fukushima residents

[08:24:30] Yan Lauria: From view point of Fukushima residents who want to re-start in Fukushima, nuclear accident can be managed

[08:25:16] Fumon Crystal: dignified smiling evacuees here

[08:25:34] Fumon Crystal: yep

[08:26:10] Lovely Kass (StarKass): How do you mean a nuclear accident can be managed? Short time only or long time too?

[08:26:21] Fumon Crystal: plz, look at these elementary school kids . they were all evacuees

[08:26:26] Astrid (Folcard): the science club display is encouraging. inside Fukushima looks quite

similar for mSv/y

[08:26:50] Chantal Jager (Nymf Hathaway): It was a question Starkiss, not an opinion

[08:26:52] Fumon Crystal: good question, Kass

[08:27:17] Fumon Crystal: that is the very question that we want to know

[08:29:54] Fumon Crystal: <Iitate Village - Evacuation order has been lifted in 2017>

[08:30:14] Yan Lauria: I think we can manage under criteria of radiation safety, but someone doesn't agree the criteria from non-scientific basis.

[08:30:30] Fumon Crystal: totally yes

[08:31:19] Fumon Crystal: So we need more science communications . for example the half-life

[08:31:47] Fumon Crystal: off course , all SC members know it

[08:32:28] Chantal Jager (Nymf Hathaway): How do the Japanese see Chernobyl, as it is today?

[08:32:45] Yan Lauria: Don't confuse "nuclear weapon" and "nuclear reactor".

[08:32:54] Fumon Crystal: yep

[08:33:36] Fumon Crystal: Chernobyl and Fukushima are LEVEL 7 of INES. this is a fact



(INES The International Nuclear and Radiological Event Scale

<http://www-ns.iaea.org/tech-areas/emergency/ines.asp>)

[08:33:37] Lovely Kass (StarKass): A nuclear reactor is a nuclear weapon under control ;-)

[08:33:54] Astrid (Folcard): The paper from the Science Club is very impressive. It has a lot of data, with what seems at first glance to be well analyzed. If they are representative, the Japanese are being

quite careful and rational.

[08:34:21] Fumon Crystal: yes, totally yes

[08:35:38] Fumon Crystal: Plz read this paper back Kindle USA : "We Want to Know"

(<https://www.amazon.com/dp/B012G0O1SS/>)

[08:36:04] Tony Carbonel Stark (mithrilx9): Not sure but I kept hearing about thorium nuclear power plant. Is there a move for future alignment with that technology in Japan (not sure if it is even a feasible technology in the first place.)

[08:37:12] Astrid (Folcard): In the 60's and 70's, Thorium reactors were championed by Oak Ridge scientists. The design is feasible

[08:37:58] Tony Carbonel Stark (mithrilx9): Interesting

[08:38:36] Yan Lauria: Every useful thing has benefit and risk and should be managed as safe as possible. Weapon's usefulness is quite different feature.

[08:38:55] Lovely Kass (StarKass): Yes.

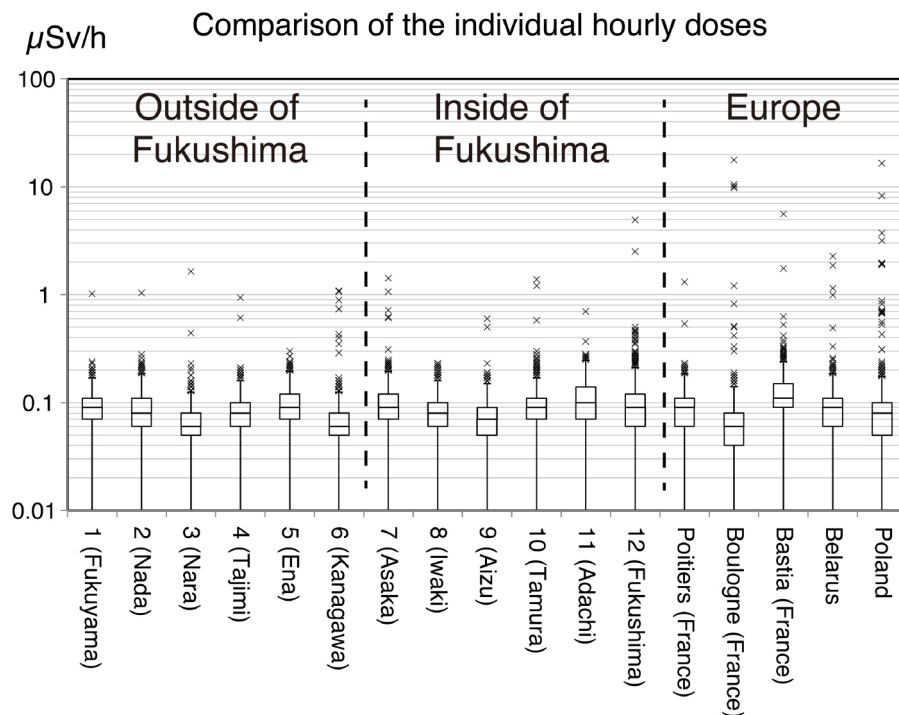
[08:39:22] Fumon Crystal: thorium > ヤンさん、この話って もんじゅ ですか？

(note: Fast Breeder Reactor Monju <https://www.jaea.go.jp/jnc/jncweb/02r-d/fast.html>)

[08:39:30] Lovely Kass (StarKass): And you (normally) can't kill people with solar panels

[08:40:16] Tony Carbonel Stark (mithrilx9): Solar energy still can't compete with Nuclear energy nor fossil energy

[08:40:29] Astrid (Folcard): the high outlier in the Science Club display (over 1 mSv/y) is from Corsica at Bastia. It would be interesting to figure out why



(note: Measurement and comparison of individual external doses of high-school students living in Japan, France, Poland and Belarus—the 'D-shuttle' project—

<http://iopscience.iop.org/article/10.1088/0952-4746/36/1/49/meta/>)

[08:40:51] Fumon Crystal: yes, in fact , so many solar panels are built after Fukushima accident...

[08:40:59] Yan Lauria: (高速増殖原型炉もんじゅとは)ちょっと違うみたいだな

[08:41:28] Astrid (Folcard): Tony, that is ludicrous. There is nothing about a kiloJoule of electricity that distinguishes where it came from

[08:42:20] Yan Lauria: <https://ja.wikipedia.org/wiki/%E3%83%88%E3%83%AA%E3%82%A6%E3%83%A0%E7%87%83%E6%96%99%E3%82%B5%E3%82%A4%E3%82%AF%E3%83%AB> (トリウム燃料サイクル)

[08:42:26] Tagline: I missed something it appears when I crashed just now, lol

[08:42:35] Yan Lauria: https://en.wikipedia.org/wiki/Thorium-based_nuclear_power (Thorium-based nuclear power)

[08:42:51] Fumon Crystal: yes^^ あい ^ ^ ;

[08:43:05] Lovely Kass (StarKass): I just said you don't kill people with solar panels, i didn't say it will be the solution for all our energy problems

[08:43:29] Chantal Jager (Nymf Hathaway): Excellent point

[08:43:31] Fumon Crystal: <Marine Research in front of Fukushima Daiichi Nuclear Power Plant>

[08:46:02] Tagline: development of (likely decentralized) economical and structurally feasible storage systems from which one can derive or draw electrical power is one of the challenges that will probably be overcome, perhaps within one or two decades

[08:46:13] Lovely Kass (StarKass): What about the ground water?

[08:46:36] Lovely Kass (StarKass): Very good point tagline

[08:47:08] Fumon Crystal: ground water is already cleaned by ALPS and SARRY system (last section here

[08:47:17] Lovely Kass (StarKass): Ohh, ok

[08:47:23] Lovely Kass (StarKass): Sorry ;-)

[08:47:25] Yan Lauria: I thought nuclear power is only practical mitigation way of CO2. but now I think wind power and solar power can be 2nd choice. Higher energy price can be trigger of new challenge.

[08:47:54] Lovely Kass (StarKass): Energy efficiency!

[08:47:56] Astrid (Folcard): From a Gandolfi at Goldman Sachs, "What started as a decarbonization process thanks to better technology is about to become a process driven by costs and the economics." So, with reasonable investment (what Goldman Sachs does) we should be able to get much more energy from these green sources

(note: Alberto Gandolfi at Goldman Sachs Research "THE LOW CARBON ECONOMY"

<http://www.goldmansachs.com/our-thinking/pages/alberto-gandolfi-wind-and-solar-boom.html>)

[08:48:02] Tagline: Nuclear power is convenient on space craft

[08:48:06] Tagline: for a start

[08:48:31] Lovely Kass (StarKass): As long as people can burn 12+ liters of gasoline per 100 km for moving their ass from one point to another point on this planet, it's useless to discuss the alternatives..

[08:48:50] Fumon Crystal: yep Astrid . "reasonable" is the very important concept in Fukushima

[08:48:56] Yan Lauria: I agree Tagline

[08:50:21] Fumon Crystal: <Yakisoba = Fried noodle. They are still evacuees in 2017>

[08:51:22] Fumon Crystal: They never cry. but smile:)

[08:51:49] Lovely Kass (StarKass): :-)

[08:51:53] Fumon Crystal: ♥

[08:52:00] Astrid (Folcard): what was the population of Fukushima before the accident, and what is it now?

(note: population in Fukushima prefecture: 1,884,646 in July 01, 2017, and 2,024,401 before the nuclear power plant accident in 2011 <http://www.pref.fukushima.lg.jp/site/portal-english/en05-01.html>)

[08:52:37] Fumon Crystal: 3rd section : Air Dose rate and evacuation zones

[08:54:02] Fumon Crystal: 20mSv/y is never the standard for being lifted of evacuation order.

[08:54:52] Fumon Crystal: We Japanese need to avoid any health effect in Fukushima.

[08:55:37] Fumon Crystal: these are radiation detecting devices

[08:56:06] Fumon Crystal: but... well.... decontamination is not so easy way, in fact

[08:58:16] Astrid (Folcard): Is Cesium137 the major risk?

[08:58:25] Fumon Crystal: true!

[08:59:21] Fumon Crystal: plz read this news advertising by Fukushima governor.

[09:00:19] Fumon Crystal: The most important thing is " We (Fukushima) will never change our name "

[09:00:46] Yan Lauria: welcome Erika

[09:01:15] Yan Lauria: yw

[09:01:22] Fumon Crystal: <Whole Body Counter and Dosimeter>

[09:01:46] Fumon Crystal: and the basic scan for internal exposure

[09:02:19] OperativePhoenix: I don't see much point in changing names like some shady companies.

[09:02:35] Chantal Jager (Nymf Hathaway): Same here

[09:02:42] Fumon Crystal: yep

[09:03:41] Fumon Crystal: Simply saying , I am a neighbor of Fukushima , so I do not want to delete the name of Fukushima:)

[09:03:59] Lovely Kass (StarKass): One last question (preparing dinner;-): why, after Hiroshima, Nagasaki and Fukushima, do you still rely on nuclear power plants?

[09:04:14] Fumon Crystal: well..

[09:04:43] Astrid (Folcard): on this chart, is ND = not detectable?

[09:04:53] Fumon Crystal: yes, ND = not detected

[09:05:09] Fumon Crystal: ND = close to safe:)

[09:05:10] OperativePhoenix: someone is making a whole lotta money

[09:05:26] Lovely Kass (StarKass): :-) It's always a business thing

[09:05:36] Lovely Kass (StarKass): Like weapon control etc

[09:05:52] Chantal Jager (Nymf Hathaway): I am with Starkiss

[09:05:55] Yan Lauria: Ahaha, very few nuclear power in Japan now. Almost are still under inspection.

[09:05:59] OperativePhoenix: most definitely

[09:07:05] Lovely Kass (StarKass): But you, I mean your prime minister, will power them up all again

[09:07:16] Fumon Crystal: I understand Kass's question very much. and we need to differ between Nuke weapon and Nuclear Power Plant

[09:07:42] Chantal Jager (Nymf Hathaway): Not in everyone's perception Fumon

[09:07:44] Lovely Kass (StarKass): It's no difference for me between this

[09:07:51] Mademoiselle de Staël (ErikaNilson): Media always tend to exaggerate bad things, and I wondered how bad it really is at Fukushima. This is very informative, thank you!

[09:08:06] Fumon Crystal: nods , Chantal

[09:08:37] Fumon Crystal: totally yes, Stel

[09:08:51] Chantal Jager (Nymf Hathaway): Receiving iodine pills for your child because you have a

nuclear plant within 200km is NOT a great thing

[09:08:51] Astrid (Folcard): yes, thank you. The hyperlinks to papers is very helpful

[09:08:55] Yan Lauria: yes StarKass. I also think nuclear power can be managed by learning but current Japan rely on fossil fuels.

[09:09:13] Lovely Kass (StarKass): I really wish everyone in Fukushima all the best. But i think we all should think about the risk which is still here

[09:09:20] Fumon Crystal: <JAMSTEC Hakuho-maru. detecting the sea water radiation>

[09:10:06] Lovely Kass (StarKass): And the waste we like to forget

[09:10:10] Fumon Crystal: <Thyroid Cancer Ultrasound Echo test result by Fukushima Medical University>

[09:10:22] Fumon Crystal: Treatise : Psychosocial Issues Related to Thyroid Examination After a Radiation Disaster (Asia Pacific Journal of Public Health 2017

<http://journals.sagepub.com/doi/abs/10.1177/1010539516686164>)

[09:11:08] Fumon Crystal: very good news after Fukushima accident : no worry about any cancer risk

[09:11:23] Mademoiselle de Staël (ErikaNilson): I don't know if this is true, but I heard some professor once say that the amount of radiation you get now in Fukushima is less than what you get from a long flight, e.g., US to Japan. Is that really so?

[09:12:12] Fumon Crystal: yes, Fukushima Medical University said so

[09:12:20] Astrid (Folcard): the thyroid is susceptible to Iodine, right?

[09:12:32] Fumon Crystal: no cancer risk on the refereed papers

[09:13:15] Fumon Crystal: this was the really good news after Fukushima accident.

[09:14:06] Fumon Crystal: and.. UNCEAER agreed this

[09:14:48] Yan Lauria: Good emergency response for nuclear accident need good democratic government.

[09:15:17] Mademoiselle de Staël (ErikaNilson Resident): And less human incompetence?

[09:16:11] Fumon Crystal: I understand Staël worries about Fukushima citizens

[09:17:15] Yan Lauria: I'm sorry I need to go to bed.

[09:17:22] Fumon Crystal: hehe

[09:17:27] Chantal Jager (Nymf Hathaway): I have to leave as well

[09:17:28] Mademoiselle de Staël (ErikaNilson): More about people not following the right safety procedures in the nuclear plants. You cannot avoid natural disasters like a tsunami or an earthquake.

[09:17:43] Fumon Crystal: yep

[09:17:47] Mademoiselle de Staël (ErikaNilson): Thank you, Mr. Lauria, sleep well!

[09:17:58] Chantal Jager (Nymf Hathaway): Thank you, Fumon!

[09:18:00] Lovely Kass (StarKass): But you can avoid to build at dangerous zones

[09:18:02] Astrid (Folcard): Fukushima gives me much more hope. Chernobyl is what scared me. But the reaction we see here is a hopeful. Are there other reactors that are close enough to sea level to be flooded?

[09:18:06] Jawesome (Jes Cobalt): Thanks Fumon ☺

[09:18:11] Yan Lauria: and volcanic.

[09:18:17] Chantal Jager (Nymf Hathaway): Wishes everyone a nice weekend!

[09:18:21] Fumon Crystal: applause for the wonderful Fukushima citizens

[09:18:28] Mademoiselle de Staël (ErikaNilson): Yes!

[09:18:31] Jawesome (Jes Cobalt): ☺

[09:18:34] Fumon Crystal: ♥

[09:18:39] Chantal Jager (Nymf Hathaway): ♥

[09:18:43] Astrid (Folcard): very well done, thank you

[09:18:50] Lovely Kass (StarKass): Was a beautiful presentation, thank you Fuman and all at Fukushima

[09:18:58] Jawesome (Jes Cobalt): waves all, see you next weekend!

[09:19:01] Fumon Crystal: Thank you , Chantal and Jes

[09:19:04] Fumon Crystal: yay

[09:19:05] Theo (Theo Finney): ty very much

[09:19:14] Yan Lauria: Chernobyl was caused by bad government.

[09:19:18] Mademoiselle de Staël (ErikaNilson): Thank you as well, Fumon!

[09:19:31] Fumon Crystal: ♥

[09:19:38] Yan Lauria: thank you Fumon and all

[09:20:18] Mademoiselle de Staël (ErikaNilson): Thank you :)

[09:21:03] Mademoiselle de Staël (ErikaNilson): Bye everyone!

[09:21:07] Fumon Crystal: ♥

