

Username: Password: [Log In](#) [Free registration](#) [Secure login](#) [Forgot password](#)

[Search](#)

5 Foods you must not eat :
Cut down a bit of stomach fat every day by never eating these 5 foods.

Never eat 



[Home](#) [About](#) [Learn](#) [Stay Current](#) [Take Action](#) [Community](#) [Marketplace](#) [Forums](#) [Contact](#)



[Take the Crash Course](#)



[Buy the DVD](#)



[Enroll Today](#)



[Schedule Chris for Your Event](#)



[Arrange Session with Chris](#)



[Donate to the Cause](#)

Login for Registered Members: Username: Password: [Log In](#)

Register for Free

Post comments, receive updates via email, gain access to exclusive content, and more.

Register Now for Free

Spam Safe!

[Home](#) » [Blogs](#) » [cmartenson's Blog](#)

EXCLUSIVE PHOTOS: Latest Satellite Imagery From Fukushima Tells Sobering Tale

Friday, April 1, 2011, 4:54 pm, by [cmartenson](#)

[Share](#) **350**

50 retweet

[Email](#)

Noting that the press has largely turned its resources off of the Fukushima complex, and needing up-to-date information on the status of the damage control efforts there, we secured the most up-to-date satellite photo from DigitalGlobe (dated March 31st), which we analyze below. **This is the first photo of the damaged reactor site at Japan's Fukushima Dai-ichi nuclear facility made available to the public in over a week.** That means you, our readers, are the first public eyes anywhere to see this photo.

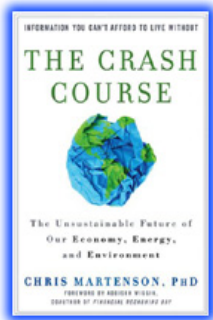


Drawing upon the expertise of our resident [nuclear engineer](#) and [Ann Stringer](#), imaging expert, we conclude that the situation at Fukushima is not stabilized: things are not yet at a place of steady progress in the containment and clean-up efforts. It's still a dance, forwards and backwards, with the workers making gains here and there but the situation forcing them to react defensively all too often.

In this report, we will tell you what we know for sure, what we are nearly certain of, and what we remain forced to speculate about.

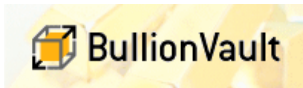
Here is a portion of a much larger image (covering 25 square kilometers in total) showing the reactor complex as of March 31, at roughly mid-day:

The New Book



What Should I Do?

-  [Water](#)
-  [Energy](#)
-  [Food](#)
-  [Wealth](#)
-  [Health](#)
-  [More...](#)



[Satellite Images Australia](#)

Get Satellite Maps, Aerial Photos & More With The Free Maps Toolbar
[Maps.alot.com](#)

[Cartage Tanks Spray Tanks](#)

Distributor Enquiries Welcome G21 Norwesco
Worlds Largest Range G21
[www.norwesco.com.au](#)

[Skyepics - Aerial Photos](#)

Stock Aerial Photos of Australia Purchase
Digital Images Online Now
[www.skyepics.com.au/aerialphotos](#)

[Disaster Recovery Experts](#)

Fast Disaster Recovery Help Fire, Water, Flood, Storm 24hrs
[www.steamatic.com.au](#)

Ads by 

Testimonials

"The information presented on this website is beautifully organized. It is surely the product of much effort in synthesis, analysis, and original thought. It is invaluable. The spirit and clarity of your delivery is encouraging and thought-provoking."

Andre

Upcoming Events

Tue, Apr 12, 2011
Crash Course Presentation in Sebastopol, CA

[more](#)

[Blog](#) [Daily Digest](#) [WSID](#)

Chris' Blog

EXCLUSIVE PHOTOS: Latest Satellite Imagery From Fukushima Tells Sobering Tale

April 1, 2011 – 4:54pm
 697233

Straight Talk with Jesse: Concentration of Wealth & Power Is the Root Problem

March 28, 2011 – 6:30pm
 352922

Francis Koster: Finding Local Investments That Pay Off for You & Your Community

March 25, 2011 – 8:25pm
 17298

Straight Talk with John Rubino: The Damage Is Already Done

March 22, 2011 – 2:01pm
 590426

Nuclear Expert's Step-By-Step Assessment of the Fukushima Disaster & What You Need to Know

March 20, 2011 – 11:34am
 378927

[more](#)

Follow Us



Photo Credit, 2011, DigitalGlobe

What We Can See

Here's what we can directly observe in the larger satellite image:

- Steam is still rising from reactors #2, #3 (circled in green) and #4.
- Of the four reactor buildings, three are nearly or totally destroyed, while the outside (at least) of the fourth is in relatively better shape.
- We can count 7 fire trucks 'on site' with another 7 just to the north, all with water lines strung out across the ground.
- There is only one ship/vessel to be seen, located inside of the breakwater and nearly as far to the north as it can go inside that boundary.
- A significant number of the vehicles that can be seen at the core of the site have not moved since the first released photos on March 12.
- There is a parking lot slightly to the north and west with approximately 250 passenger vehicles in it and a side lot with 30 large green tanks neatly arranged in rows.
- The rest of the area is one, two, and four lane roads (no traffic at all), worked farmland, residential and commercial areas, mostly empty parking lots, and two baseball diamonds.



As many cars here as in the entire rest of the 25 km² photo.

Here's what we *don't* see

- Nowhere in the 25 km area in the main photo can we find anything that looks like a staging area with a large collection of assets such as tanker trucks, pumpers, cement trucks, piles of pre-staged materials, ambulances, and fire trucks.
- The cement pumper truck seen a week ago has been apparently replaced by the boom at reactor #4.
- There's no obvious barge delivering fresh water for the reactor cooling efforts as recently reported (it may have come and gone?).
- Any obvious changes to the roofs of any of the reactors.
- Any people outside the plants working.



Things we can logically conclude

The steam that is venting is a mixed blessing. It implies that cooling water is getting to some hot material, which is a good thing, but it also means that something is hot enough to vaporize water leading to the continued release of radioactive contamination into the surrounding environment and further bombarding the reactor complex with

radiation which complicates the work efforts. *[Note: prior sentence edited for clarity on April 2, 2011].*

This means that the lack of steam coming from reactor #1 is either a very good sign, or a very bad sign. Good because it could mean that the containment vessels are intact and cooling water is circulating. Bad because it could imply that no water is getting to it and it is a very hot mass right now. According to TEPCO, reactor #1 has had seawater, and now freshwater, circulating through the reactor vessel - and since both containment vessels are intact, we'll conclude the lack of steam is a good sign.

The situation at Fukushima is going to drag on for years. First there's the matter of stabilizing the situation which has not yet been fully achieved. Recent surprises in terms of the amounts and locations of radioactivity are one sign that the situation is not fully stabilized. Still, nothing has blown up in quite a while, the steam venting appears consistent, and the major surprises seem to be over for now. While the TEPCO workers are still reacting to things as they arise, these are smaller things than last week, which is another hopeful sign.

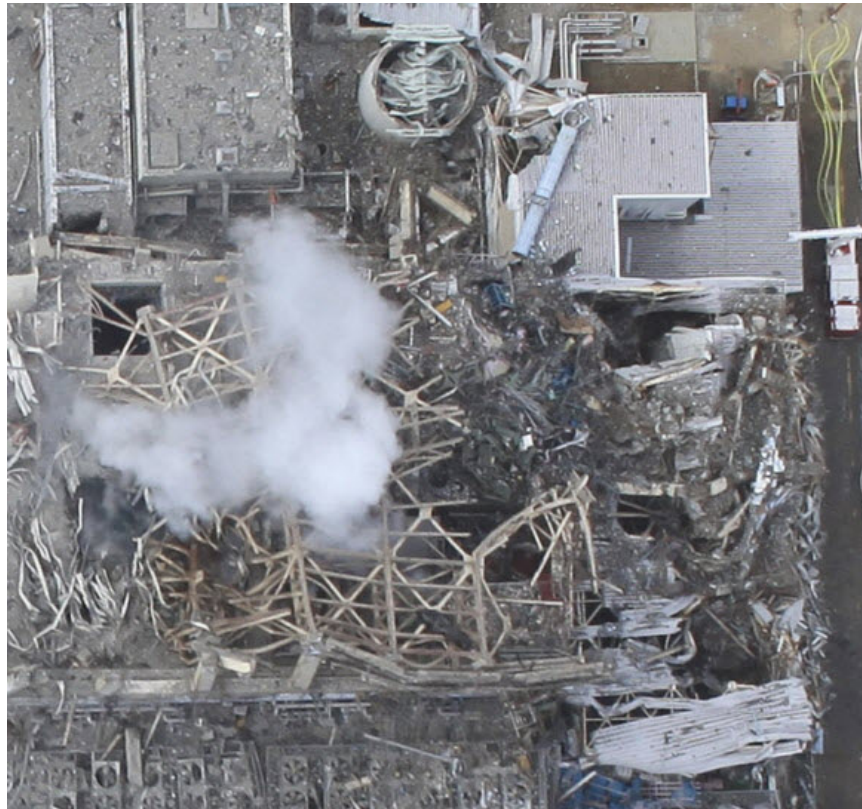
The detected presence of neutron beams, I-134, and radioactive chlorine are all strongly supportive of the idea that criticality has resumed. Our best guess is that these are localized pockets, probably of short duration, and do not involve the entire core mass of any particular reactor conflagrating in some gigantic, greenish blob of uncontrolled fission. The geometries of the fuel in relation to neutron moderators requires precise conditions to support sustained fission and so it is rather unlikely to be occurring in anything other than localized pockets. If the entire reactor in its fully operational state was capable of supporting what we might scale to 100% fission, the amount of fission happening after a partial (or complete) meltdown will be a far lesser percentage. Still, any amount of fission is unwelcome at this point because it is adding to the heat and generating fresh radioactive elements that can escape.

The constantly rising levels of radioactivity found in the seawater are a further unwelcome development, but without a proper isotope analysis we cannot conclude anything about the potential resumption of fission from their gross amounts alone. It's always possible that the leftover fission products are now being washed in larger amounts into the sea for some reason.

Additional Drone Photos

These are the most detailed photos yet to emerge into the public space (released yesterday, March 31, as far as I know), and they are purported to come from a drone flyover on March 20 and 24th. They are really quite good, and worth viewing in their entirety [here](#).

Beginning with reactor 3, one thing we can say is, this thing is a right proper mess:



([Source](#) for all that follow)

There's a significant hole to the left of center that goes deep into the sub-structure (with a strange greenish cast that we've not been able to resolve after much conjecture) and it's clear that this building alone will take a long time to resolve.

Interestingly, we get our clearest image yet of the hole in turbine building #3 that was created by something ejected into the air during the reactor #3 explosion.



Looking like one of those cartoon cutouts that happens when the coyote hits the ground, we get the impression that whatever it was happened to be quite heavy and possibly shaped like an Apollo capsule. It has been my suspicion, which contradicts the official story, that the concrete containment vessel was what actually blew up in reactor #3 and I have been looking for evidence of in the form of large, heavy chunks of concrete (especially the refueling plug) lying about. I don't know what made this hole in the roof of the turbine building, but it was heavy.

Reactor #4 provides us with proof that serious damage can result from the effects of an overheated spent fuel storage pool:



Here the watering boom can be clearly seen. A camera was recently attached to the boom and it took some interior shots which were suggestive of the idea that the spent fuel pool is damaged and largely drained of water. Spraying water into this pool, then, is probably a balancing act with the desire to spray enough water on the rods to keep them cool being offset by the risk of having radioactive water drain away for parts unknown.

Almost certainly this same balancing act defines the efforts for reactors #2 and #3 as well.

Conclusions

The efforts at Fukushima are probably weeks away from even basic stabilization and we are years away from any sort of a final resolution. This crisis is going to be with all of us for a very long time. Radioactive material will continue to escape from the complex into the environment for weeks at best, months or years at worst.

The chief concern here is that things might still take a turn for the worse whereby radiation spikes to levels that prevent humans from getting close enough to perform meaningful operations and work on the site. If the radiation spikes high enough it will force an evacuation from the vicinity complicating every part of what has to happen next from monitoring to remediation.

The general lack of staged materials anywhere in the vicinity indicates that authorities have not yet decided on a plan of action, feeding our assessment that they are still in 'react mode' and that we are weeks away from nominal stabilization.

On Thursday we learned from the Wall Street Journal that TEPCO only had one stretcher, a satellite phone, 50 protective suits, and only enough dosimeters to give a single one to each worker group. Given this woeful level of preparation it is not surprising to see that regular fire trucks, cement trucks, and a lack of staged materials comprise much of the current damage control mix.

We don't yet know enough to conclude how much fission has spontaneously re-occurred, but we have strong

suspicious that the number is higher than zero. Here we make our call for the release of more complete and timely radiation readouts and sampling results by TEPCO and Japan so that we can assess what the true risks are. The situation remains fluid and quite a lot depends now on chance and which way the wind blows.

And as I detailed in the **Alert report** I issued soon after the tragic events of the Japan earthquake and tsunami on March 10th, the impact of Japan's tribulations on the global economy will be large and vast. World markets are simply unprepared for the third-largest economy to suddenly and violently downshift. The persisting crisis at Fukushima simply worsens the picture.

As always, we'll continue monitoring developments closely and reporting our findings and conclusions on this site.

best,

Chris

[Share](#) **350** **50** retweet [Email](#) [SHARE](#)

[Chris Martenson's Blog](#) | [contamination](#) | [Fukushima](#) | [nuclear](#) | [Radiation](#) | [reactor](#) | [Satellite photo](#)

[Login](#) or [register](#) to post comments | 6980 reads | [Print](#)

[Ads by Google](#) [Water Pump](#) [Water Trucks](#) [Fire](#) [View Photos](#) [Waste Water](#)

Comments



Fri, 04/01/2011 - 17:52 #1



r101958
Offline
Martenson Brigade Member
Posts: 197

Joined: 08/24/2008

Informative Report and.....

Very informative, non-sensationalized, report. Hard to find these days.

We (my wife and I) subscribe to NHK and my wife told me that on the news tonight (April 2nd, morning in Japan) the Japanese Gov't was considering asking the U.S. Navy to dispose of radioactive waste water and this was considered one of the big issues they were pondering. My wife is native Japanese (now U.S. citizen) so the translation is good. Not much more detail though.

[Top](#)

[Login](#) or [register](#) to post comments

Fri, 04/01/2011 - 18:39 #2



Jbarney
Offline
Member
Posts: 18

Joined: 11/26/2010

Much Needed Details

This was a very in depth report which lends support to the idea that this crisis will be with us for some time. I think it is really sad that the situation in Japan is barely mentioned on some news broadcasts.

As dreadful as the nuclear situation is, it was helpful to hear CM reference his alert from a few weeks ago. If you listen to the mainstream press you would think the economy is popping along and the only place the global markets can go is up.

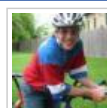
Good report.

Jason

[Top](#)

[Login](#) or [register](#) to post comments

Fri, 04/01/2011 - 19:41 #3



dps
Offline
Martenson Brigade Member
Posts: 284

Joined: 06/27/2008

Thanks for keeping us in the world of reality!

I don't frequently post, but wanted to say thank you Chris. I'm half-way through the book. I'm enjoying it very much. ... dons

[Top](#) [Login](#) or [register](#) to post comments

Fri, 04/01/2011 - 19:55 #4



rocketgirl1
Offline
Silver Member
Posts: 219


Joined: 02/11/2009

thanks

A sincere thank you to CM and the CM staff as well as our resident experts for this timely report ! Thanks also for making your investigations open to the public :) :) :D

[Top](#) [Login](#) or [register](#) to post comments

Sat, 04/02/2011 - 00:16 #5



smartenson
Offline
Diamond Member
Posts: 2618


Joined: 06/07/2007

9,999 counts per second...30 km away

Yes, I meant per *second*, not minute.

Greenpeace had their Geiger counters maxed out at a site 30 km away from Fukushima. This is definitely a hot spot that they had to drive around to find, but there it is.

Unless they get this under control soon, more and more of these unlivable hotspots will be developing.




(Source)

It's well worth watching the video in the link because you will get a feel for just how messy the situation is by watching people on a windy day taking readings, getting in and out of a vehicle, pulling their masks on and off, and generally being forced to accept some level of contamination along the way.

There's just no way to stop something you can't see from getting all over everything.

[Top](#) [Login](#) or [register](#) to post comments

Sat, 04/02/2011 - 02:03 #6



Travlin
Offline
Platinum Member
Posts: 548

Joined: 04/15/2010

Chris or anyone That is a

Chris or anyone

That is a very informative analysis. A few days ago we saw reports comparing the amount of contamination from Fukushima to Chernobyl. It was still lower at that time, but high, and Fukushima is expected to continue creating contamination for a longer period of time, probably much longer as you report. The likely results would be a higher total amount of contamination than Chernobyl.

Since Fukushima did not have an active core directly exposed, and a raging fire, it seems contamination was not drawn into the upper atmosphere and the jet streams, like Chernobyl. Yet if the total amount of contamination over time is larger, this bodes very badly for Japan and its neighbors. Your map of unlivable areas around Chernobyl

compared to Japan was instructive. Japan can't afford to have a significant area become uninhabitable. I would appreciate any thoughts the CM team, or members, may have on the likelihood of Fukushima creating more total contamination.

Travlin

You can always trust your government -- to do anything necessary to preserve itself. Travlin

[Top](#)

[Login](#) or [register](#) to post comments

Sat, 04/02/2011 - 09:28

#7



robert essian

Joined: 08/31/2008

Offline
Full Member
Posts: 38

Chris, unbelievable!

Chris, unbelievable! Riveting and you're my link. Thank you...So sad.

Robert Essian

[Top](#)

[Login](#) or [register](#) to post comments

Sat, 04/02/2011 - 09:30

#8



sasha243022

Joined: 10/05/2008

Offline
Member
Posts: 1

world economy

Thanks, this is a useful and well done informational update.

As far as effect on the world economy does, I have heard somewhat cynical assessment that Japan's trouble is good for the US. The logic goes - this is destruction of productive capacity, likely to increase US market share and allow some firms to raise prices. Rebuild effort is likely to lead to increased orders from the US, too. Plus central banks are going to be more accomodating, preventing any debt or foreign exchange disruptions. Sure, some companies may also suffer due to supply chain disruption, but these effects are likely to be dwarfed.

What is your take on this?

[Top](#)

[Login](#) or [register](#) to post comments

Sat, 04/02/2011 - 10:22

#9



ozzy43

Joined: 09/29/2008

Offline
Member
Posts: 4

Helpful analysis as always

Helpful analysis as always, thanks.

One comment: one of the things the mainstream media has done so very poorly in regard to this story is to blindly repeat government assurances that 'levels of radiation' pose no 'no immediate threat' - and the way in which this tends to be done is by confusing, through intention or ignorance, the terms 'radioactivity' and 'radiation' - it's a tip off that the report either 1) doesn't know what its talking about (usually, a journalist), or 2) is engaged in misinformation (typically, a government official or member of the nuclear lobby).

Unfortunately, the analysis above falls prey to the same confusion, when it states:

"Radiation will continue to escape from the complex into the environment"

It's not radiation escaping that is the problem - its escaping radioactivity and the attendant contamination.

Radiation would be alpha and beta particles, and gamma waves. These are dangerous to the 'Fukushima 50' or others exposed to them, but not to the world at large. The serious health threat here is radioactive materials escaping (isotopes of iodine, cesium, etc). Those materials, carried in wind currents and in earth and sea, get ingested by living things (e.g. humans and fish and asparagus), and accumulate, and can then be ingested by other living things which eat them (think: food web).

Here's the key point which you will not have grasped from reading the mainstream media: the danger lies with these 'internal emitters' - that is, isotopes which are ingested (breathed in or eaten). That is what will cause cancers worldwide. That is what gives this crisis global scope. NOT radiation (alpha, beta, gamma) emanating from the plant.

So from the standpoint of global public health (and remember: scientists insist that residue from Chernobyl continues to this day to cause new cases of thyroid cancer, years after the isotopes themselves have degraded to harmlessness), the statement should have read:

"Radioactivity [or radioisotopes] will continue to escape from the complex into the environment"

With this understanding, it is worth noting that such isotopes have in fact already been detected on both the east and west coasts of America, so we can safely assume that if they've reached the heartland by now or will very soon. The only effective 'defense' I know of - and a very partial, limited one at that - is to increase uptake of iodine via kelp or supplement of some form. At least, this may protect from iodine-131, which tends to lodge in the thyroid and leads to thyroid cancer years later. As the wikipedia page on I-131 puts it:

"Much smaller incidental doses of iodine-131 than are used in medical treatment, are thought to be the major cause of increased thyroid cancers after accidental nuclear contamination. These cancers happen from residual tissue radiation damage caused by the I-131, and usually appear years after exposure, long after the I-131 has decayed."

[Top](#)

[Login](#) or [register](#) to post comments

Sat, 04/02/2011 - 10:27

#10



jturbo68

Offline
Bronze Member
Posts: 96

Joined: 08/04/2009

World Economy

sasha243022 wrote:

Thanks, this is a useful and well done informational update.

As far as effect on the world economy does, I have heard somewhat cynical assessment that Japan's trouble is good for the US. The logic goes - this is destruction of productive capacity, likely to increase US market share and allow some firms to raise prices. Rebuild effort is likely to lead to increased orders from the US, too. Plus central banks are going to be more accomodating, preventing any debt or foreign exchange disruptions. Sure, some companies may also suffer due to supply chain disruption, but these effects are likely to be dwarfed.

What is your take on this?

Companies will step in to make monies off of the disaster. And as you say, foreign firms will benefit from the Japan disruption in that they will have lost some competition and gained access to new markets.

Another thought is that even Japanese firms will benefit from rebuilding their own infrastructure.

To me these short term outcomes are just mini bubbles of the kind that are created all the time.

The bigger and more important issue for all of us is that the destruction of infrastructures simply put additional