
REMAPPING DEBATE

Asking "Why" and "Why Not"

Will there be risks to U.S. travelers flying domestically in wake of Japan's nuclear disaster? Is anyone assessing?

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March 16, 2011 — One might imagine that U.S. government agencies are well-versed in the physics of how, when, over what period of time, and with what consequences, radioactive particles may rise to the altitude of the jet stream, there to be transported from Japanese air space across the Pacific Ocean until some subset of those particles were circulating in the jet stream over the United States.

Might the issues and risks in the air over the U.S. be different from the issues and risks on U.S. soil?

One might also imagine that a basic level of national security vigilance would mean that these agencies had definitive plans in place to coordinate with one another, apply established standards of radiological safety to the context of air travel in and through that jet stream, and update the public accordingly.

At least in respect to the second set of imaginings, it appears that one would be wrong.

Remapping Debate set out to find basic information on questions relating to potential domestic air travel consequences of the events tragically occurring in Japan — hoping, frankly, that the relevant agencies would have solid evidence to demonstrate that public concern was unnecessary.

Our starting point had to do with the jet stream right now flowing eastbound from Japan. (A jet stream is a narrow band of air generally found at an altitude of at least 20,000 feet that travels well in excess of 100 miles per hour.) There is nothing unusual about the fact that particles of a variety of types, once they reach the altitude of a jet stream, are carried by that jet stream, sometimes for long distances.

And no one has publicly claimed that all particles would be “washed out” of the jet stream prior to arrival over the U.S.

A leading atmospheric scientist suggested that we call the National Atmospheric Release Advisory Center at the Lawrence Livermore National Laboratory. NARAC's website describes it as providing “tools and services that map the probable spread of hazardous material accidentally or intentionally released into the atmosphere,” and says that it has “a team of research and operational staff with expertise in atmospheric research, operational meteorology, numerical modeling, computer science, software engineering, geographical information systems, computer graphics, hazardous material (radiological, chemical, biological) properties and effects.”

Nevertheless, a spokesperson for the program director at NARAC referred us to the National Nuclear Security Administration, a semi-autonomous agency of the Energy Department. (NNSA and the Energy Department state that they have just sent a combined 33 experts to U.S. consulates and military installations in Japan to assist with Japanese response efforts.)

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National Nuclear Security Administration: “we have no expertise” on this question

Unfortunately, there was no concrete information to be had from NNSA. Damien LaVera, a spokesperson for the agency, said that “we have no expertise on what this is going to mean for [domestic] air travel at this point,” and said that Remapping Debate should direct its inquiries to the Federal Aviation Administration.

LaVera drew attention to the Nuclear Regulatory Commission’s weekend statement on the situation in Japan, describing the NRC as having said that there was “no indication that there is going to be any radioactive material from the reactors reaching the United States.”

Are there *any* levels of radiation that *are* now expected?

When we pointed out that the NRC statement was carefully limited to whether “dangerous” levels of radiation were expected to reach the U.S. — and did not make a blanket statement that no radiation was expected to reach the U.S. — the spokesperson acknowledged that this was the case, and again referred us to the FAA.

Are there *any* levels of radiation that *are* now expected? If radioactive particles did enter the jet stream over Japan, how long would it take for some of those particles to be passing over the United States? “These are hypotheticals that are impossible for us to answer for you at this point,” responded the NNSA spokesperson, who reiterated that “we don’t have anybody here who is going to be able to comment on the jet stream issue”; speak to the FAA or the National Weather Service.

Federal Aviation Administration: assurances, but no information

Remapping Debate was able to reach the FAA, but Tammy Jones, a spokesperson for the agency, couldn’t provide more than an assurance framed in the most general terms possible: “we would take whatever action is necessary to ensure that people are safe.”

Jones was unable to tell us whether and in what circumstances the FAA had ever suspended or partially

suspended air flights because of what was thought to be radioactive contamination of the jet stream, what level of ambient radiologic activity in the jet stream had been determined by the agency to represent too great a hazard to public health, and what studies the agency had done on the consequences to the environmental integrity of the jet stream over the United States from events — the Chernobyl disaster being the most obvious illustration — that originated elsewhere.

She did, however, undertake to make inquiries within the agency and send us follow-up information. At press time, no such information has been received.

Questions about airline passenger and worker safety deserve to be answered, said the program director of Ploughshares.

Paul Carroll, the program director for Ploughshares, an international security foundation, took a measured view of potential risk in connection with domestic U.S. air travel. The fact that one of the risky radioactive contaminants from Japan’s nuclear power disaster — Cesium-137 — emits “alpha” particles that can relatively easily be blocked without any special materials like the lead that the public sometimes associates with protection from radiation, suggests that air travelers may well be shielded from ill effects from any Cesium-137 encountered by the airplane in which they are flying.

Even the exposure of the outside of an airplane to plutonium — one potential consequence of the disaster in Japan were there to be further discharge from the MOX, or “mixed oxygen,” reactor — would not, Carroll said, necessarily harm airline passengers.

Iodine-131, however, a confirmed contaminant from the disaster, emits both “beta” particles (like alpha particles, also relatively easily blocked) and “gamma” particles. The latter, Carroll said, are “penetrative” — aluminum and steel do not provide a surefire barrier against them.

With respect to all particles, questions about whether the system of pressurized air and air filters would protect those in the cabin from contamination, as well as questions about what would happen when airline crews or maintenance workers came in contact with any debris on the outside of the airplane, do deserve to be answered, Carroll said.

One spokesperson for a government-affiliated scientific research institute, speaking on background, suggested that, while our questions were entirely reasonable, it was necessary to understand that the answers to them might be complex, and would require the bridging of atmospheric science, energy science, and expertise on air travel — a combination, he said, involving collection and coordination of information between and among multiple government agencies.

Airline employee: concerns “both for ourselves and for our passengers”

For someone who flies for a living, however, the questions quickly become personal and basic. Remapping Debate spoke with a flight attendant for Delta Airlines. The worker, who did not want to be identified by name, first expressed concerns “both for ourselves” — meaning fellow airline personnel — “and for our passengers.”

Then the flight attendant expressed the desire to know what “universal precautions,” if any, were available to be taken. How, this worker wondered, would industry employees know “what to look for...and what to do” if there came to be above-normal levels of radiation in the jet stream — now or in the future.

After reflecting on the prospect of frequent travel over the next several weeks, the flight attendant had one more question for the government: are there “any contingency plans” if radioactive materials are found in the jet stream?

According to Carroll of Ploughshares, the government needs to have and demonstrate that it has intra-agency communication and coordination in place to make certain that issues of public health in the air are taken as seriously as issues of public health on the ground.

This content originally appeared at <http://remappingdebate.org/article/will-there-be-risks-us-travelers-flying-domestically-wake-japans-nuclear-disaster-anyone-ass>