Monitoring air dose rates from a series of aircraft surveys 30 months after the Fukushima Daiichi NPS accident

December 25, 2013

Secretariat
of
Nuclear Regulation Authority

NRA, Japan
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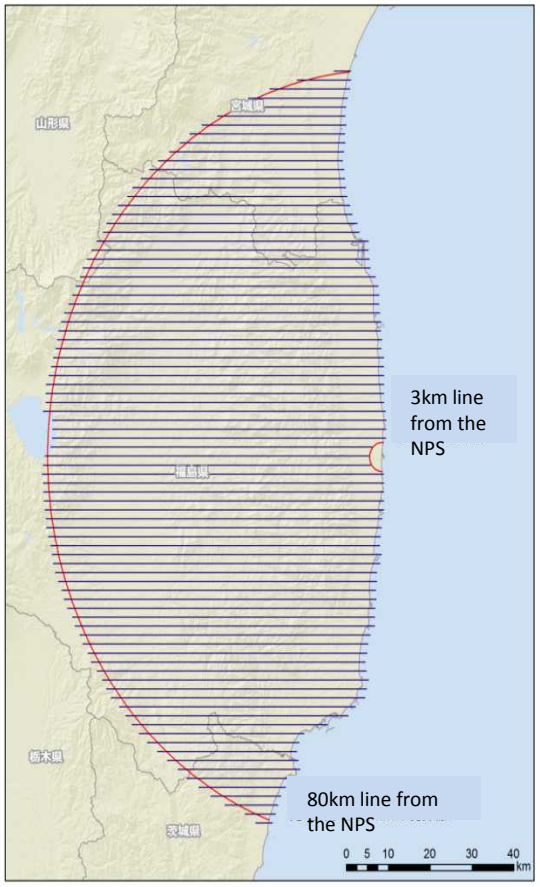
Contents

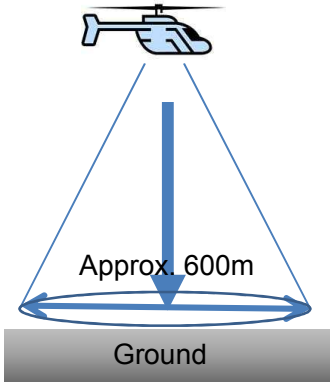
Monitoring air dose rates has been conducted on the bases of “Comprehensive Monitoring Plan”.
(http://radioactivity.nsr.go.jp/en/contents/8000/7758/view.html).
The series of aircraft survey was reported on June 5, 2013 (http://www.nsr.go.jp/english/data/sr_0617.pdf).
http://www.nsr.go.jp/english/data/sr_0617.pdf
The precise survey was required, and then, aircraft flew with tracks of narrow intervals in the period of August 27 and September 28, 2013.
The air dose rates map with higher resolution was obtained.

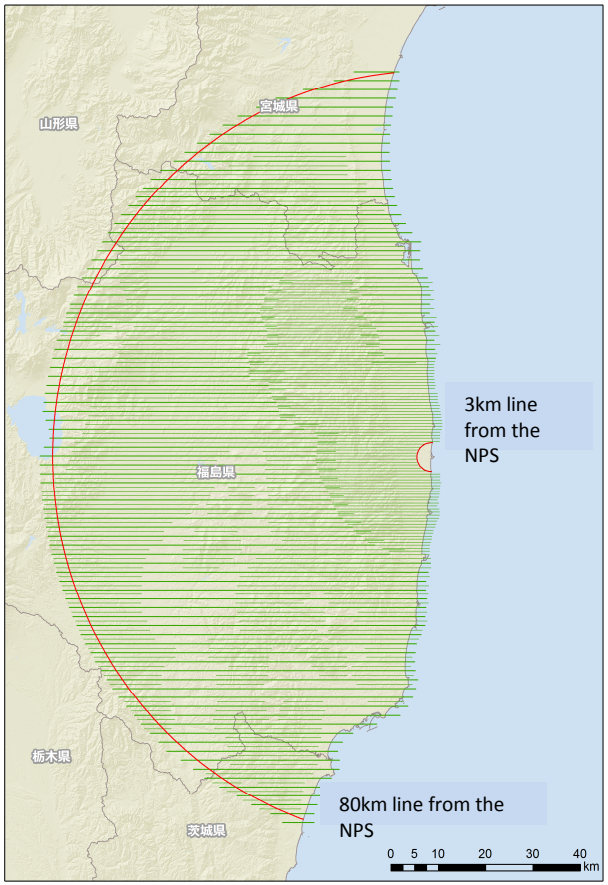
The additional information can be shared with relevant organizations, parties concerned and the local people who live near the NPS or have been evacuated due to the nuclear accident.

Flight tracks
20 months（left）and 30 months(right) later



Gamma rays from the ground are detected by NaI scintillators installed in an aircraft (e.g. helicopter) while flying approximately 300m above the ground with every 1 second in a row.





Intervals:
1.85 km: All areas in 80km zone

Intervals:
1.85 km: Area of <0.2μSv/h (measured previously);
0.93 km: Area of ≧0.2μSv/h (measured previously)
(except Evacuation Directed Zones);
0.62 km: Evacuation Directed Zones

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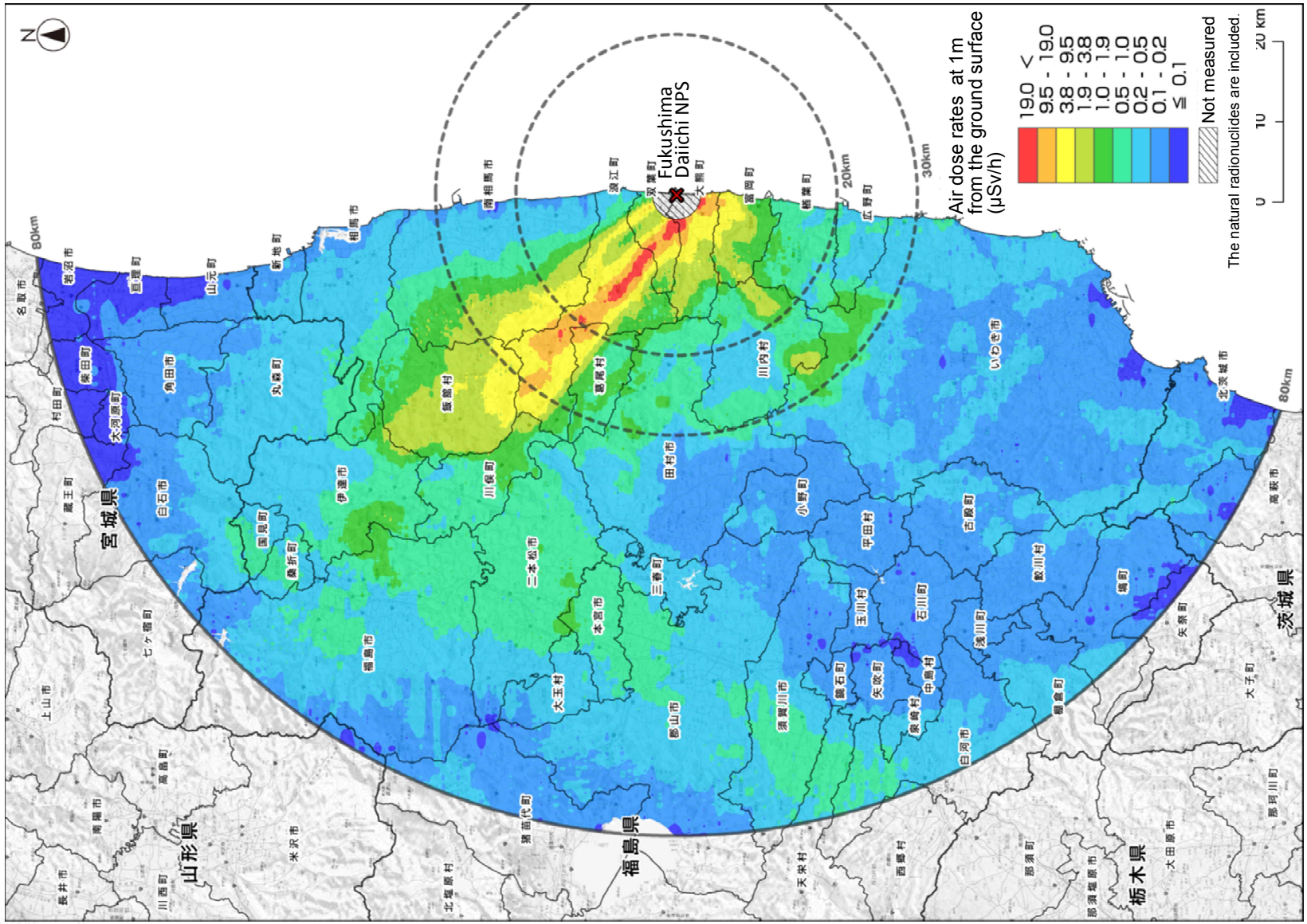
Air dose rates in the 80km zone from Fukushima Daiichi NPS

30 months later (Sep. 28, 2013)



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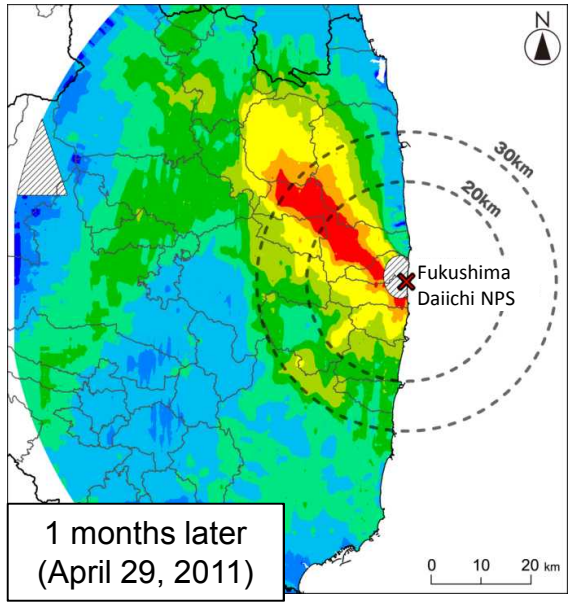
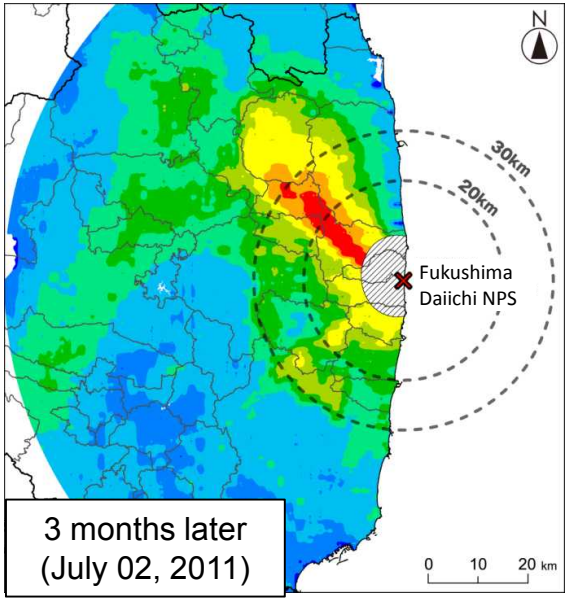
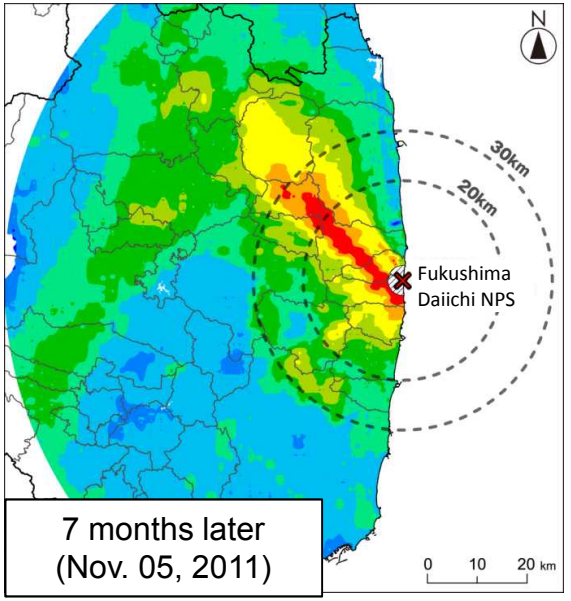
Air dose rates in the 80km zone from Fukushima Daiichi NPS



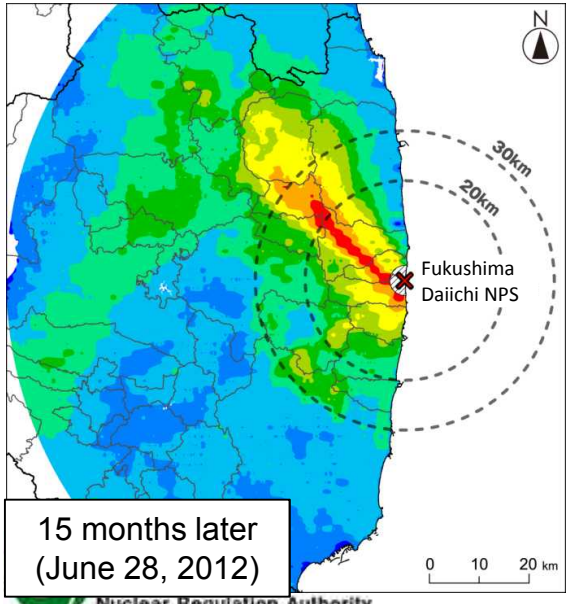
1 months later
(April 29, 2011)



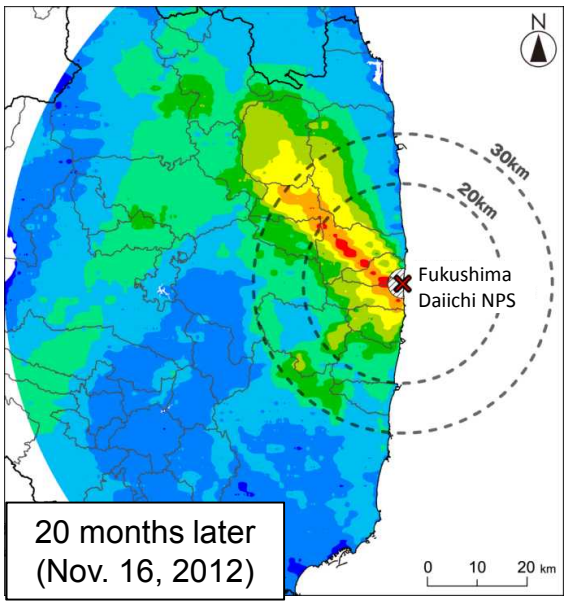
3 months later
(July 02, 2011)



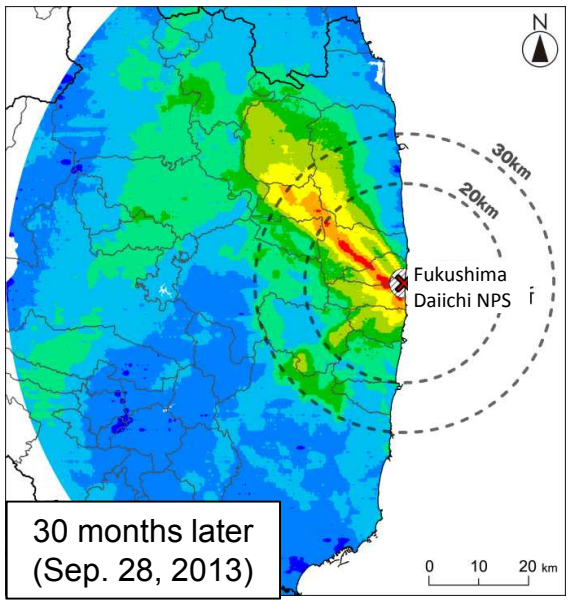
7 months later
(Nov. 05, 2011)



15 months later
(June 28, 2012)

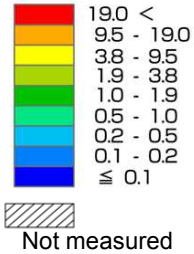


20 months later
(Nov. 16, 2012)



30 months later
(Sep. 28, 2013)

Air dose rates at 1m from the ground (μSv/h)



The natural radionuclides are included.

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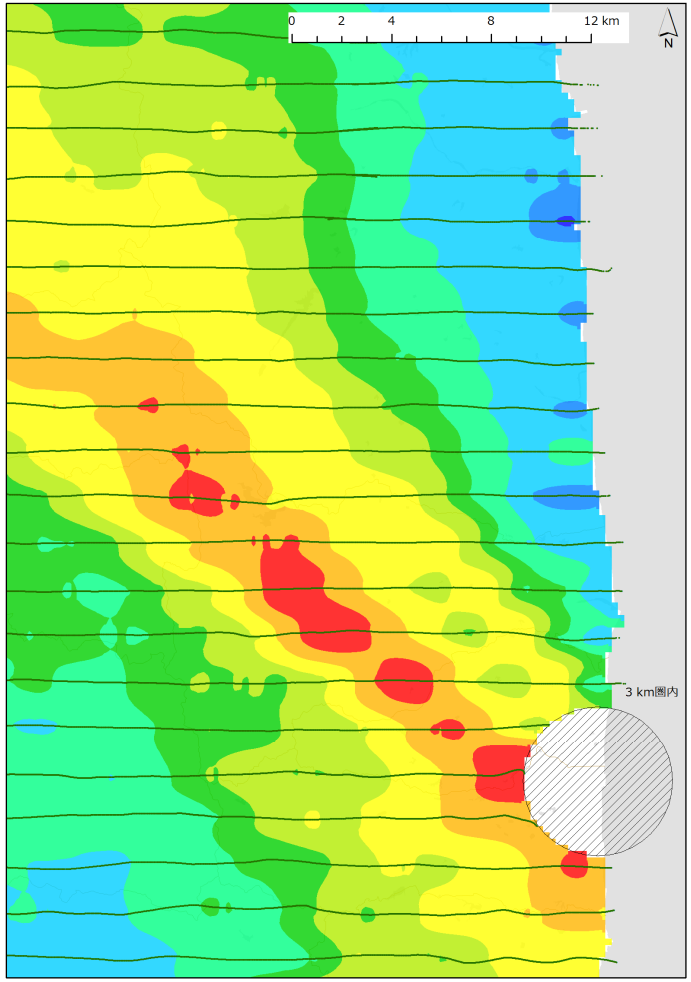
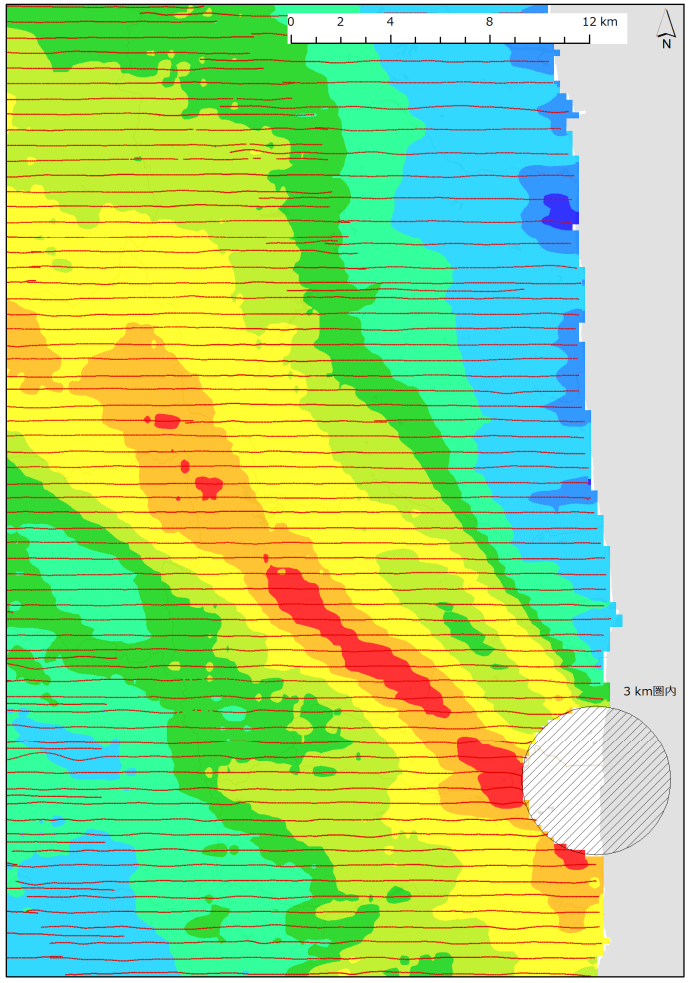
Enlarged maps of part of the 80km zone
20 months later (left) /30 months later (right)





Air dose rates at 1m from the ground surface (μSv/h)

- 19.0 <
- 9.5 - 19.0
- 3.8 - 9.5
- 1.9 - 3.8
- 1.0 - 1.9
- 0.5 - 1.0
- 0.2 - 0.5
- 0.1 - 0.2
- ≦ 0.1

In the survey 30 months after the accident, the intervals of flight tracks were narrower comparing with the previous flight ones. It has created the map (right figure) with high resolution enough to figure out the distribution of air dose rates.

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