Results of Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture

The results of the airborne monitoring survey by MEXT in Fukushima prefecture (announced on August 15, 2011) were summarized today, so they are provided here.

1. Objective of this monitoring
MEXT has conducted airborne monitoring* within a 100km zone from the Fukushima Dai-ichi NPP (up to around 120km in the southern part of the Fukushima Dai-ichi NPP), so as to ascertain the wide-area distribution of radioactive substances and assess future doses and deposition of radioactive substances in evacuation zones, etc.

In addition to this, airborne monitoring was also conducted in the western part of Fukushima prefecture, where airborne monitoring has never been conducted, for the purpose of ascertaining the effects of radioactive substances over a wider area.

This monitoring was conducted by the staff of the Nuclear Safety Technology Center, using the MEXT’s airborne monitoring system installed in a private helicopter, and the results were analyzed by the Japan Atomic Energy Agency and the Nuclear Safety Technology Center.

*Airborne monitoring is a technique in which highly sensitive, large radiation detectors are installed in an aircraft, and gamma rays from radioactive substances accumulated in the ground are quickly measured over a large area, in order to check the surface deposition.

2. Details of this monitoring
- Monitoring dates: August 16 to August 28
- Aircraft: A private helicopter (BEL412)
- Items covered: Air dose rate 1 m above the ground surface outside of an around 100 km range of the Fukushima Dai-ichi NPP in the west part of Fukushima prefecture, and deposition of radioactive cesium on the ground surface

3. Results of this monitoring
Maps showing the distribution of air dose rates 1m above the ground surface and maps showing the deposition of radioactive substances on the soil surface in the western part of Fukushima
prefecture (Attachments 1 to 4) are based on the results of the third airborne monitoring survey conducted within 80km from the Fukushima Dai-ichi NPP, the results of the second airborne monitoring survey conducted within 80 to 100km from the Fukushima Dai-ichi NPP (up to around 120km in the southern part of the Fukushima Dai-ichi NPP), and the results of this monitoring survey.

Furthermore, to verify the spread of radioactive substances, we also prepared maps combining the results of the past airborne monitoring surveys that MEXT had conducted so far. The results are as shown in References 1 to 4.

Maps were prepared under the following conditions.
- Data released this time are based on the measurement results obtained through eight flights by one helicopter from August 16 to August 28. Their flight altitudes were from 150 to 300m above the ground.
- The values for this monitoring survey are the averages of the measured values in circles with a diameter of around 300 to 600m (varies by flight altitude) below the aircraft.
- The height time spacing is around 3km in this monitoring survey.
- A map of air dose rates in Fukushima prefecture (Attachment 1) shows the attenuation-compensated values as of the final day of this monitoring (August 28).
- The values of the concentration of Cs-134 and Cs-137 deposited on the ground surface in Fukushima prefecture, as shown in Attachments 2, 3, and 4, were calculated based on the results of the third airborne monitoring survey and this monitoring survey, as well as the correlation between air dose rates and the results of the in-situ measurement using germanium semiconductor detectors that was conducted by the Japan Chemical Analysis Center in the course of the project under the 2011 Strategic Funds for the Promotion of Science and Technology, entitled “Establishment of the Base for Taking Measures for Environmental Impact of Radioactive Substances — Study on Distribution of Radioactive Substances.”
- Maps as shown in References 1 to 4 were produced by combining the following results.
  - Within 80km from the Fukushima Dai-ichi NPP: The third airborne monitoring survey
  - Within 80 to 100km from the Fukushima Dai-ichi NPP (regarding the southern part of Fukushima Dai-ichi NPP, up to around 120km): The second airborne monitoring survey
  - Northern part of Miyagi prefecture: Airborne monitoring survey by MEXT and Miyagi prefecture
  - Southern part of Tochigi prefecture: Airborne monitoring survey by MEXT and Tochigi prefecture
  - Southern part of Ibaraki prefecture: Airborne monitoring survey by MEXT and Ibaraki prefecture
  - Western part of Yamagata prefecture: Airborne monitoring survey by MEXT and Yamagata prefecture
  - Western part of Fukushima prefecture: This monitoring survey

These maps show the attenuation-compensated values as of the final day of this monitoring
(August 28).

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Readings of the Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture
(Air dose rates at the height of 1m above the ground surface in Fukushima prefecture)
Readings of the Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture
(Total accumulation of Cs-134 and Cs-137 on the ground surface in Fukushima prefecture)
文部科学省による福島県西部の航空機モニタリングの測定結果について

（積算値134Csの地表面への沈着量）

別紙3

Readings of the Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture
(Accumulation of Cs-134 on the ground surface in Fukushima prefecture)
Readings of the Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture
(Accumulation of Cs-137 on the ground surface in Fukushima prefecture)
Readings of the Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture
(Air dose rates at the height of 1m above the ground surface in the western part of Fukushima prefecture and other areas where MEXT has conducted airborne monitoring surveys)

Legend
Air dose rates at the height of 1m above the ground surface (µSv/hr)
[Converted to values as of August 28]
Readings of the Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture
(Total accumulation of Cs-134 and Cs-137 on the ground surface in the western part of Fukushima prefecture and other areas where MEXT has conducted airborne monitoring surveys)

Legend
Total accumulation of Cs-134 and Cs-137 (Bq/m²)
[Converted to values as of August 28]

- 3600k <
- 1000k - 3000k
- 600k - 1000k
- 300k - 600k
- 100k - 300k
- 60k - 100k
- 30k - 60k
- 10k - 30k
- ≤ 10k

Areas without measurement results
Readings of the Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture
(Accumulation of Cs-134 on the ground surface in the western part of Fukushima prefecture and other areas where MEXT has conducted airborne monitoring surveys)
Readings of the Airborne Monitoring Survey by MEXT in the Western Part of Fukushima Prefecture
(Accumulation of Cs-137 on the ground surface in the western part of Fukushima prefecture and other areas where MEXT has conducted airborne monitoring surveys)