

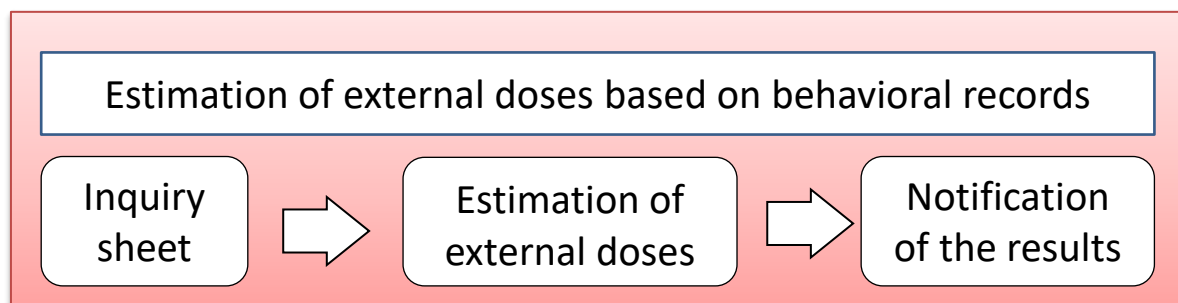
Basic Survey: Purpose

A survey to obtain data that is to serve as the basis for monitoring and protecting residents' health

In order to estimate external doses, individuals were asked to keep and submit a record of their behavior.

Based on collected behavioral records for the four months from March 11 to July 11, 2011, each individual's external dose was estimated using the External Dose Estimation System developed by the National Institute of Radiological Sciences.

[Survey scheme]



Estimated results and the period for estimation are reported to participating individuals to let them know their own external doses, and at the same time, the obtained data are utilized in the Detailed Surveys and individuals' health management to be continued for the long term.

Basic Survey: Outline

[Period for estimation]

Behavior during the four months from March 11 to July 11, 2011

[Coverage]

Approx. 2.06 million people

- Residents of the prefecture:

People with residence registration in the prefecture from March 11 to July 1, 2011

- People residing outside the prefecture:

- (1) People who were registered as residents in other prefectures but were residing in the prefecture from March 11 to July 1, 2011
- (2) People residing outside the prefecture who commuted to work or school in the prefecture from March 11 to July 1, 2011
- (3) People residing outside the prefecture who temporarily stayed in the prefecture from Mar. 11 to Mar. 25, 2011

(For people residing outside the prefecture, inquiry sheets were sent upon their request.)

Basic Survey: Inquiry Sheets

There are two types of inquiry sheets: a detailed version and a simplified version.

● Detailed version (conventional version)

区分 月日	滞在 場所	時 刻												地名・施設名
		0	3	6	9	12	15	18	21	24				
3/11 (金)	屋内	①												① 自宅 ② 車 ③ 会館
	移動	②												
	屋外	③												
3/12 (土)	屋内	①												④ 車中(〇〇 中学校校舎) ⑤ 知人宅(△ △町字△)
	移動	②												
	屋外	④												
3/13 (日)	屋内	⑤												⑥ 避難所(〇〇 中学校)(〇〇 町)
	移動	②												
	屋外	⑥ (飲料水)												
3/14 (月)	屋内	⑥												⑦ 避難宿泊所(▽▽ 町▽▽温泉▽▽荘) ⑦
	移動	②												
	屋外	⑦ (買い物)												
3/15 (火)	屋内	⑦												⑧ 電車 ⑨ 知人宅(〇〇県 〇〇市〇〇) (木)
	移動	②・⑧												
	屋外													

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All respondents were asked to record the activities they conducted on an hourly basis for the period from March 11 to March 25, but the simplified inquiry sheet allows some respondents to summarize their behavior and only enter basic behavioral patterns for a certain period of time.

- Simplified version

期 間	滞 在 地 等
平成23年 3月11日	①この期間の居住地は、2ページで記載した住所と同じですか？ <input type="checkbox"/> 同じ（□表紙の住所 □3月11日の住民票住所 □現住所） <input type="checkbox"/> 異なる（下記ご記入ください。） 都・道 市・区 区・町 府・県 郡 村
↓ ____月 ____日 （行動パターン 大きく変わっ は、その日の を記入し、変 らなかった人 は7月11日と記入 してください。）	②居住地の近くでこの期間、平均的にみると屋外にいる時間は、 1日あたりどのくらいでしたか？ <input type="checkbox"/> 1時間 <input type="checkbox"/> 2時間 <input type="checkbox"/> 3時間 <input type="checkbox"/> 4時間以上 [____] 時間 ③定期的な外出先（勤務先や学校など）はありましたか？ <input type="checkbox"/> いいえ（次の欄にお進みください） <input type="checkbox"/> はい（3 ページと同じであれば、外出先と住所の記入は不要） 外出先施設名： _____ 都・道 市・区 区・町 府・県 郡 村
	③の外外出での滞在時間は、1日あたりどのくらいでしたか？ 屋内 [____] 時間 屋外 [____] 時間 外出する曜日は？（○で選択）：月・火・水・木・金・土・日 ④他にも、よく外出する先がありましたか？ <input type="checkbox"/> いいえ（次の欄にお進みください） <input type="checkbox"/> はい 外出先施設名： _____ 都・道 市・区 区・町 府・県 郡 村
	④の外外出での滞在時間は、1日あたりどのくらいでしたか？ 屋内 [____] 時間 屋外 [____] 時間 外出する曜日は？（○で選択）：月・火・水・木・金・土・日

In November 2013, a simplified inquiry sheet was introduced.

[Requirements for using the simplified inquiry sheet]

People who have experienced none or only one significant behavioral pattern change (such as a change of residence, school or workplace due to evacuation or moving) in the four months following the disaster

Examples

- 1 A person who was residing in Fukushima City at the time of the disaster, **evacuated to Kanagawa** on March 15 and continued staying in Kanagawa until July 11
- 2 A person who was residing in Fukushima City at the time of the disaster, **evacuated to Aizuwakamatsu** on March 18 but **returned to Fukushima City** on June 10

Moved once

Simplified version

Moved twice

Detailed version

Basic Survey

Basic Survey: Analysis Methods (Behavioral Pattern Survey and Dose Rate Map)

Behavioral pattern survey

Examine behavioral patterns based on inquiry sheets of the Fukushima Health Management Survey

Survey period

Four months from March 11 to July 11, 2011

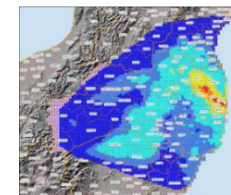
Surveyed items

- Stays (places, hours and building structures)
- Moves (places and hours)

区分 月日	滞在 場所	時 刻										地名・施設名
		0	3	6	9	12	15	18	21	24		
記 入	屋内	①				④			④			① 自宅
	移動				③							② 自宅の畑
例												③ 車内
	屋外				② (80分)				⑤ (120分)			④ 避難所
												(〇〇市××中学校)㊦
												⑤ 〇〇市××町字△△

Dose rate maps

Prepare maps showing average daily effective dose rates based on data of SPEEDI and the Ministry of Education, Culture, Sports, Science and Technology (MEXT)



- March 12 to 14 Evaluation results by SPEEDI (effective dose rates)
- From March 15 onward Monitoring data released by MEXT (at that time) (ambient dose equivalent rates)

Convert ambient dose equivalent rates to effective dose rates by multiplying by 0.6

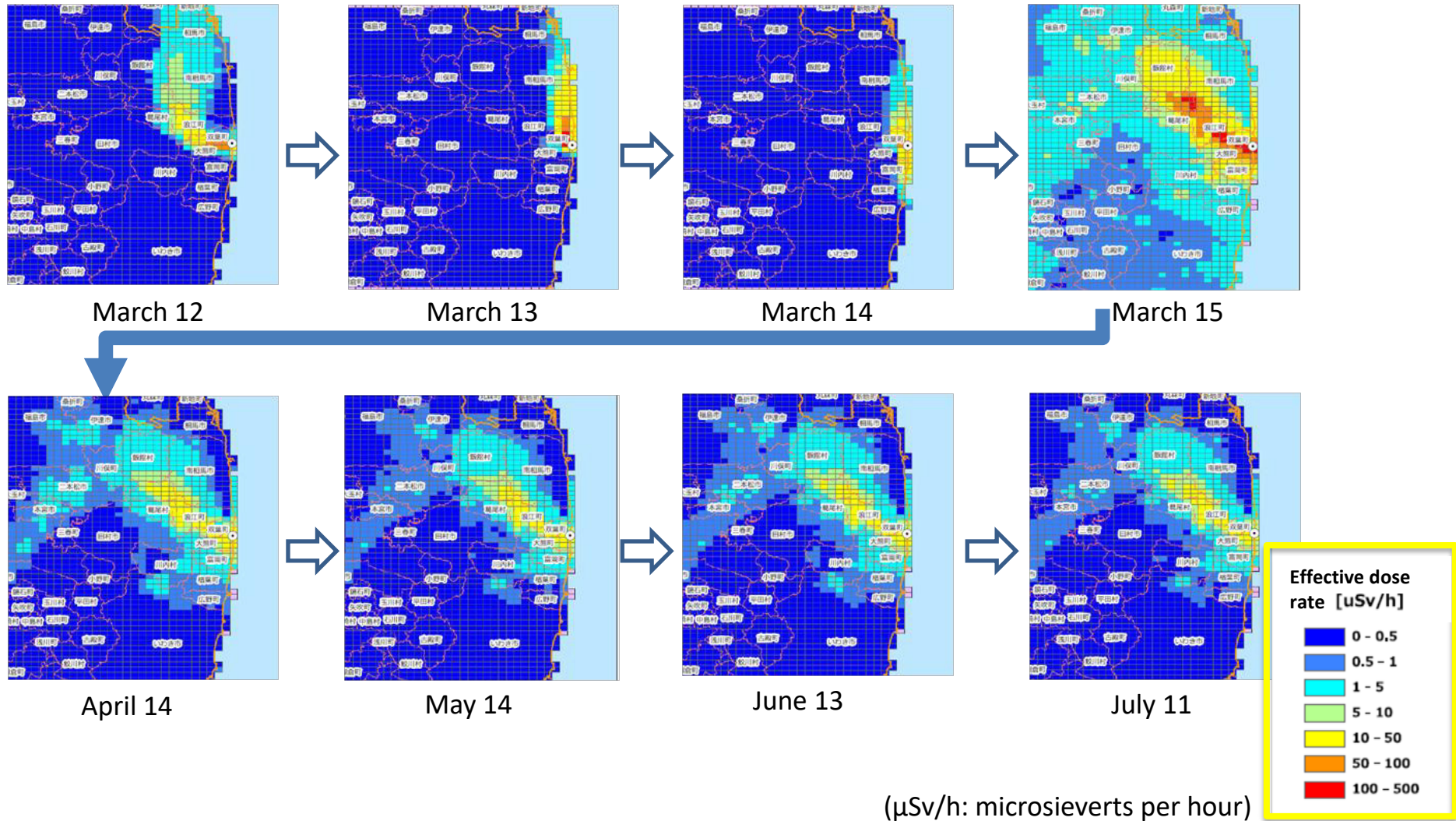
- Divide into 2 km × 2 km grids
 - Interpolate discrete data using software to create a map
- * Values of natural radiation are not included.

Calculation of cumulative effective doses

Evaluate effective doses based on behavioral patterns and dose rate maps

Basic Survey

Basic Survey: Analysis Methods (Time-series Dose Rate Maps)



Prepared based on the website of Fukushima Prefecture, "Estimation of External Doses (Outline of the External Dose Estimation System and Estimation Results by Model Pattern of Evacuation Behavior), National Institute of Radiological Sciences" (December 13, 2011)

Basic Survey

Basic Survey: Obtained Responses and Their Representativeness

The response rate was 27.7% for the entire Fukushima Prefecture.

However, as a result of the examination on the representativeness, the dose distribution based on the responses obtained so far in the seven districts in the prefecture was found to be unbiased and to properly represent that of respective districts.

Table 1

Responses to the Basic Survey

As of March 31, 2023

Coverage		2,055,236	
Number of responses	Detailed version	493,997	24.0%
	Simplified version	75,441	3.7%
	Total	569,438	27.7%

* Response rates are rounded off for each category.

Table 2

Response rate by age group

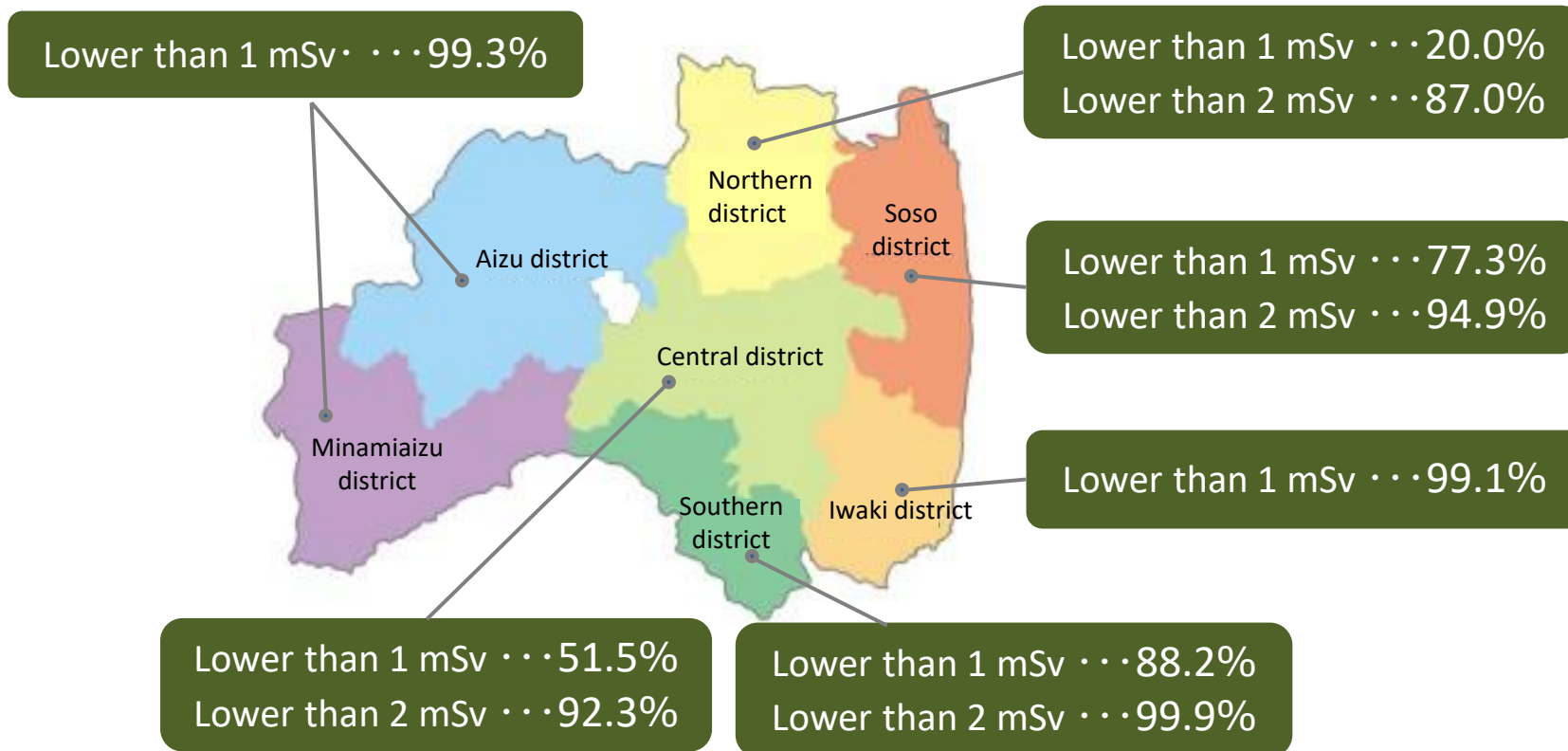
As of March 31, 2023

Age group	0～9	10～19	20～29	30～39	40～49	50～59	60～	計
Response rate	46.8%	36.3%	18.2%	24.9%	22.5%	23.0%	27.9%	27.7%

* Rates (%) are rounded off.

Results of estimated external effective doses by district

(for 467,256 people excluding radiation workers)



Evaluation of estimated effective doses

Past epidemiological studies have not confirmed clear health effects of radiation below 100 mSv. Therefore, the estimated external effective doses, though covering only four months, can be evaluated as values that are unlikely to show any health effects caused by radiation.