

## A study of the quality of the water and the nitrogen isotope ratio of the groundwater in Kanagawa.

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### Introduction

As the technique of solving the cause of groundwater contamination by nitrate nitrogen, there is a method of using the nitrogen stable isotope ratio in groundwater. In this approach, it is a method to estimate the groundwater nitrogen origin from the difference of the nitrogen isotope ratio during artificial manure and domestic animal raw sewage, life drainage to become the polluter. However, the nitrogen isotope ratio in groundwater is often different from a nitrogen isotope of the pollution origin by isotope concentration by influence and nitrification or the denitrification of the different pollution origin.

Therefore, in this study, I examined the change tendency of a characteristic and the groundwater quality and the nitrogen isotope ratio every area using findings for the nitrate nitrogen high density groundwater area in Kanagawa.

### Result

For from 2002 to 2011, I investigated it in the neighboring areas of the environmental standard excess spot to elucidate a cause of the groundwater contamination with nitrate nitrogen. An investigation was carried out so far in 22 areas, 184 wells. Investigation was conducted in Ebina City (two areas), Miura City (one area), Samukawa Town (one area), Chigasaki City (two areas), Ayase City (four areas), Hadano City (nine areas), Isehara City (one area), Nakai Town (one area), and Oiso Town (one area).

In each investigation, I assumed a range of a radius of 1-2km around the environmental standard excess well an area for and sampled groundwater from a 5-15 well in 1 area. The gathered groundwater measured the concentration of dissolved matters and the nitrogen stable isotope ratio. In addition, using land use classification figure of the Geographical Survey Institute publication, I calculated the land use division ratio in the area for.

### Consideration

In the investigation that I went for so far, each nitrate nitrogen pollution cause was classified below. The artificial manure alone origin were 9 areas in 22 areas (41%), the life drainage independent origin were 1 area (5%), artificial manure, the life drainage mixture origin were 7 areas (32%), artificial manure, other mixed origin were 2 areas (9%), and unknown origin were 3 areas. In all 22 areas, the origin by the life drainage were only 1 area. On the other hand, in 19 areas where a cause became clear, influence of the artificial manure was seen in 18 areas. From this, in the nitrate nitrogen high density groundwater area in Kanagawa, it was revealed that it was supposed influence by the artificial manure at most spots. From this, in the nitrate nitrogen high density groundwater area in Kanagawa, it was revealed that it was supposed influence by the artificial manure at most spots.

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