

# FOLLOW-UP ENVIRONMENTAL FIELD-SURVEY RESULTS OF CHEMICAL SUBSTANCES IN THE AREA STRUCK BY THE GREAT EAST JAPAN EARTHQUAKE (FISCAL YEAR 2011-2013 INVESTIGATION)

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## Introduction:

An outflow of chemical substances and their sedimentation and environmental pollution through diffusion caused by tsunami, in outskirts of coastal area stricken by the East Japan Great Earthquake that occurred in March, 2011 is of great concern. Therefore, Ministry of the Environment carried out a follow-up survey around this area from FY 2011 to 2013. In this study, I studied distribution characteristic, temporal trend, and isomeric composition of each chemical substances, focusing on POPs analysis in water and sediment of follow-up survey.

## Material and Methods:

At a site shown in Fig.1, sample was sampled, and 14 POPs substances were analyzed according to an existing method. In addition, I measured and analyzed five optical isomers.

## Results and Discussion:

In water, of the average concentrations of 14 POPs substances, the highest was PFOA, and the rest were in the order of PFOS=PBDEs=HCHs > PCBs  $\geq$  DDTs=CHLs=HCB  $\geq$  PeCBz. On the other hand, PCBs and PBDEs were the highest in sediment, followed by DDTs > HCHs=CHLs=HCB > PFOS=PFOA=PeCBz. The concentration range of HCB and PeCBz in one sampling site exceeded the survey

findings before the earthquake disaster for both water and sediment. When I measured optical isomers in sediment of 7 sampling sites, 19 samples, one site differed in its characteristics in terms of enantiomeric ratio (EF=(+)/(++(-))) of *o,p'*-DDD in relations with the absolute density (Fig.2).

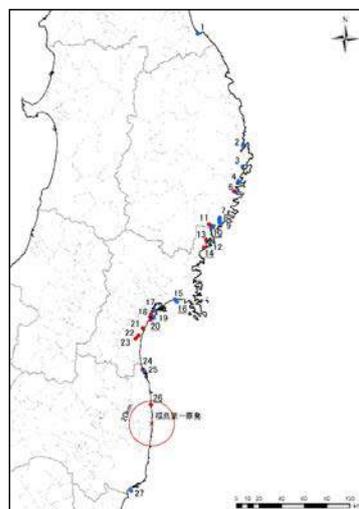


Fig.1 Sampling Points

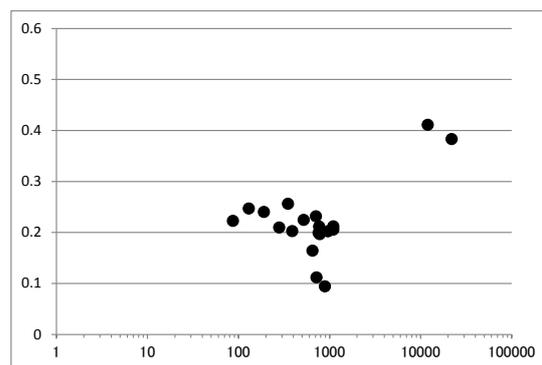


Fig.2 Correlation between EF values of chiral *o,p'*-DDD and *o,p'*-DDD concentrations