

FUNDING PROGRAM FOR NEXT GENERATION WORLD-LEADING RESEARCHERS

Project Title: Satellite global isotopomer observation

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1. Background of research

Isotopomer is well known as a tracer of the “History” of the air-mass. But it was difficult to observe isotopomer ratio by satellite remote sensing technique because of the sensitivity. We will try to obtain the global distribution of the isopomer from satellite observation.

2. Research objectives

We will perform that

1. Reveal the global isotopomer distribution for ozone in the stratosphere, and CH₄ in the troposphere by using the Japanese “ultra-high-sensitive satellite observation” such as JEM/SMILES and GOSAT.
2. Model analysis to understand the processe
3. New development of the instrument to observe isotopomers

3. Research characteristics (incl. originality and creativity)

This study plan to reveal the “Global distribution of the isotopomer” on the Earth atmosphere in systematically for the first time.

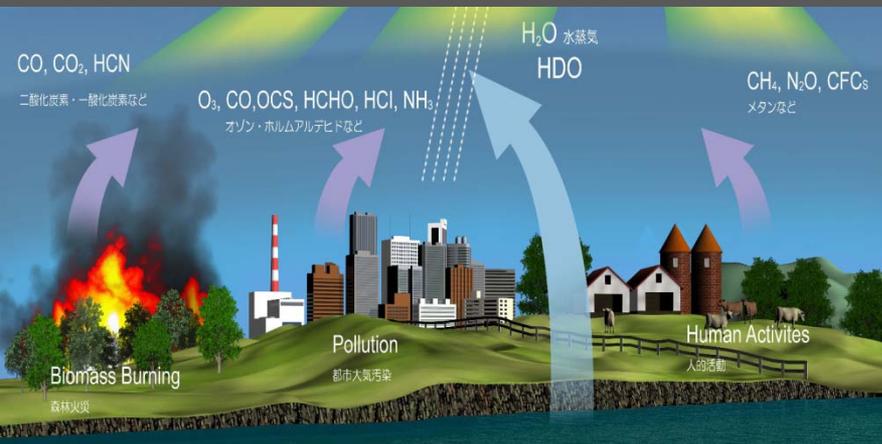
4. Anticipated effects and future applications of research

Isotopomer is powerful tool to investigate the history and origin of the air-mass for the environmental research. In future, it may possible to estimate the budget and source of the pollution from each local place, such as “Pollution of west coast of North America due to Asia” from these observation.

Target of the research

Creation of the new field for the Satellite Global isotopomer observaiton

1. Reveal the global isotopomer distribution for ozone in the stratosphere , and CH4 in the troposphere by using the Japanese “ultra-high-sensitive satellite observation” such as JEM/SMILES and GOSAT.
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3. New development of the instrument to observe isotopomers

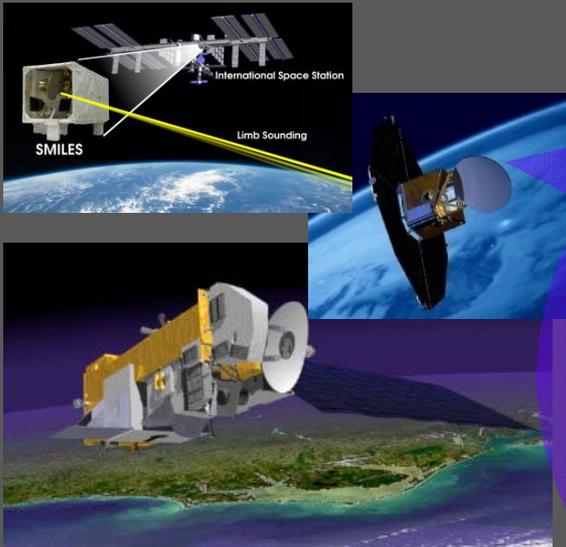


Estimation of the source of O₃



Research method

Satellite Observation



Process study by model

Global Isotopomers Observation

Development of the New instrument

