

## 陸域生態系の炭素循環・窒素循環過程を有した新しい地球システムモデルの開発プラン

### A design for the new Earth System Model with terrestrial carbon/nitrogen cycle processes

羽島 知洋<sup>1\*</sup>; 渡辺 真吾<sup>1</sup>; 河宮 未知生<sup>1</sup>; 渡辺 路生<sup>1</sup>; 野口 真希<sup>1</sup>; 岡島 秀樹<sup>1</sup>; 建部 洋晶<sup>1</sup>;  
伊藤 彰記<sup>1</sup>; 山崎 大<sup>1</sup>; 立入 郁<sup>1</sup>; 加藤 悦史<sup>2</sup>; 杉山 昌広<sup>3</sup>; 伊藤 昭彦<sup>4</sup>; 大垣内 るみ<sup>1</sup>  
HAJIMA, Tomohiro<sup>1\*</sup>; WATANABE, Shingo<sup>1</sup>; KAWAMIYA, Michio<sup>1</sup>; WATANABE, Michio<sup>1</sup>; NOGUCHI, Maki<sup>1</sup>;  
OKAJIMA, Hideki<sup>1</sup>; TATEBE, Hiroaki<sup>1</sup>; ITO, Akinori<sup>1</sup>; YAMAZAKI, Dai<sup>1</sup>; TACHIIRI, Kaoru<sup>1</sup>;  
KATO, Etsushi<sup>2</sup>; SUGIYAMA, Masahiro<sup>3</sup>; ITO, Akihiko<sup>4</sup>; OHGAITO, Rumi<sup>1</sup>

<sup>1</sup> 海洋研究開発機構, <sup>2</sup> エネルギー総合工学研究所, <sup>3</sup> 東京大学 政策ビジョン研究センター, <sup>4</sup> 国立環境研究所

<sup>1</sup>Japan Agency for Marine-Earth Science and Technology, <sup>2</sup>The Institute of Applied Energy, <sup>3</sup>UTokyo Policy Alternatives Research Institute, <sup>4</sup>National Institute for Environmental Studies

Changes in the natural environment that are the result of human activities are becoming evident, and these changes are interrelated and can not be investigated without interdisciplinary collaboration between scientific fields. In order to understand the interrelated mechanism within the Earth's environment and to evaluate/project the anthropogenic impact on it, Earth system models (ESMs) have been developed by incorporating the biogeochemical processes of terrestrial/marine ecosystems into atmosphere-ocean general circulation models. These models have joined the Coupled Model Intercomparison Project (CMIP) and contributed to the assessment report of IPCC. We finished a process of reviewing our modeling and scientific activities up to the IPCC 5th assessment report, and we have started to design a new generation of ESMs. In this presentation, we briefly summarize the scientific/modeling tasks with ESM, and illustrate the design of the new ESM we are now developing.

キーワード: 陸域生態系, 炭素循環, 窒素循環, 地球システムモデル, 温暖化予測, 生物地球化学

Keywords: terrestrial ecosystems, carbon cycle, nitrogen cycle, Earth system models, Climate change projection, Biogeochemistry