Abstract

[Abstract]

Theme 1 played a major role in promoting the overall S-18 Project. Based on this mission, its primary objectives were to establish a research framework for integrated climate change impact projections and to develop foundational information such as climate and socioeconomic scenarios. To achieve these objectives, Theme 1 was organized into five sub-themes (STs). In ST1, a common research framework was developed to enable integrated impact projections and adaptation assessments across the S-18 Project. It established common cases that examined how impacts would change under four conditions: the level of warming (greenhouse gas emission scenarios), climate models, socioeconomic scenarios, and the presence or absence of adaptation measures. In addition, common climate scenarios and long-term socioeconomic scenarios up to the year 2100, including projections for population, household numbers, and land use, were formulated. The objective of ST2 was the integration and analysis of research outcomes and the communication of the findings to society. A method for adaptation pathway analysis was developed to help identify effective adaptation options and the appropriate timing of their implementation. Furthermore, the outcomes of impact projections and adaptation assessments from the S-18 Project were collected, and a method was established to provide them to local governments and other stakeholders

through A-PLAT, the climate change adaptation platform managed by the National Institute for Environmental Studies. The focus of ST3(1) and ST3(2) was the development of data-driven methods for impact projection. ST3(1) developed statistical projection methods in areas such as agricultural crops, river flooding, and ecosystems. It covered 67 types of crops, demonstrating the potential for new approaches to impact assessment. ST3(2) focused on health risks and conducted risk projections for dengue fever, heatstroke, and COVID-19. It also evaluated the effectiveness of adaptation measures. ST4 targeted the development of methods for evaluating adaptation strategies. It constructed an integrated analytical framework for assessing the impacts on water resources and rice cultivation and for formulating adaptation strategies. It also examined institutional designs to promote adaptation measures in the Shinano River Basin. These outcomes of Theme 1 provided a foundation for the S-18 Project to produce unified results under a common research framework. At the same time, through the development of new methodologies, Theme 1 also made academically and socially significant contributions in the fields of agriculture, natural disasters, health, and adaptation assessment.

[References]

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