Evaluation of the CMS-CERES rice crop growth model

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ABSTRACT

Food security of world is a serious problem because of the ever growing population. The climate variability is more prevalent in recent years and thus worsens the problem of food security. Agriculture and climate are interconnected and the availability of food may be significantly impacted by climate change. Climate factors such as rising temperatures, CO_2 levels, and precipitation patterns have an impact on crop yields . The average global atmospheric carbon dioxide in 2023 was 419.3 parts per million. Between 2022 and 2023, the amount of carbon dioxide in the atmosphere increased by more than 2 parts per million. Since 1850, the average annual increase in Earth's temperature has been 0.11° Fahrenheit (0.06° Celsius), or almost 2° F. The increased concentration of greenhouse gases in the atmosphere is expected to cause an increase in the global mean surface temperature of 1.4 to 5.8°C between 1990 and 2100. Potential changes in the global climate may have an effect on the yield of food crops like rice which provides 21% of the energy needed by humans and meets the nutritional demands for more than half of the world's population.

Key words: *CMS, CERES, Crop growth model and Rice*