

## Analysis of soil erosion on cropland considering future climate change in Okinawa

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In Okinawa Prefecture, excessive red soil runoff due to soil erosion (water erosion) is a problem, and development of prediction method of erosion amount in cropland is required. In previous studies, analysis using a process based model "Water Erosion Prediction Project, WEPP" has been tried. However, methods for assessing soil erosion risk considering future climate change, which are necessary for long-term project for measures to reduce soil erosion, have not been studied yet. In this study, we made climate input data considering future climate change in Okinawa Prefecture using weather simulator "MarkSim" and applied it to WEPP.

In the climate input data created from MarkSim, precipitation tended to increase with the rise in temperature due to global warming. However, in the WEPP analysis under bare soil condition and under sugarcane farming condition, no increase in risk of erosion due to climate change could be confirmed. This is because the infiltration amount in the cropland increased with excessive drying of surface soil due to increasing evaporation. From the above, it is suggested that the increase in precipitation due to future climate change may not necessarily lead to an increase in erosion amount.

Keywords: WEPP Model, MarkSim, Global warming, Red soil runoff