



# Gwangju Institute of Science and Technology

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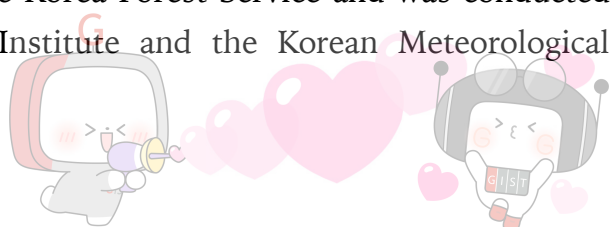
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<b>Release Date</b>	2021.02.24	

## Professor Jin-Ho Yoon's team suggests the effect of mitigating large-scale forest fire damage when global warming is suppressed

- GIST (Gwangju Institute of Science and Technology, President Kiseon Kim) School of Earth Sciences and Environmental Engineering Professor Jin-Ho Yoon's research team investigated the relationship between climate change due to global warming and the change in risk of forest fires through climate model simulation data analysis.
  - The research been confirmed that the global meteorological risk of wildfire increases due to the increase in temperature due to global warming. In addition, it was found that forest fire risk factors can be significantly reduced if future temperature rise compared to the pre-industrial revolution is suppressed from 2.0°C to 1.5°C.
- In recent years, as the damage of large-scale wildfires has occurred frequently around the world, such as Australia, California, Siberia, etc., many studies have been conducted on the relationship between climate change and increased wildfire damage. Previous studies have warned of the possibility of a change in a climate that is more susceptible to wildfires caused by rising temperatures due to greenhouse gas emissions.



- However, a qualitative evaluation of climate change on forest fires, especially the extreme weather conditions that induce large fires, has not been carried out against the goal of limiting the future temperature rise to 1.5°C and 2.0°C as proposed in the 2016 Paris Agreement.
- A change in conditions of high temperature and low humidity is most pronounced in the Amazon, southern Africa, and countries near the Mediterranean. In addition, as wildfires appear stronger before and after periods of intensive occurrence, this suggests that the period of weather and climatic conditions vulnerable to wildfires may be extended in the future compared to the present.
- Compared with the 1.5°C and 2.0°C scenarios, although there is a temperature difference of 0.5°C, the climatic wildfire risk is expected to increase almost twice in some areas, such as the Mediterranean region and western North America, where large-scale wildfires occur frequently.
- This suggests that the risk of forest fires due to global warming is increasing, and more active global warming reduction policies are needed to cope with this problem. It is also a warming that, due to the continuous increase in temperature, in the near future we may face large-scale wildfires that we have not experienced so far.
- Professor Jin-Ho Yoon said, "Although the increase in the risk of forest fires due to warming is evident, the risk of large-scale forest fires can be reduced if the temperature rise can be suppressed to 1.5°C through efforts by countries around the world. In some regions, including Australia and Indonesia, the vulnerability of wildfires has already been significantly worsened by climate change."
- This research was led by Professor Jin-Ho Yoon and Ph.D. student Rackhun Son at the GIST School of Earth Sciences and Environmental Engineering in collaboration with Tokyo University in Japan, Utah State University, and Chapman University in America. This international joint research also involved Chonnam National University and the Korea Forest Service and was conducted with support from GIST Research Institute and the Korean Meteorological



Agency Drought Center. The results of the study were published online on February 15, 2021, in *Environmental Research Letters*, an internationally renowned academic journal in the field of atmospheric science.

