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[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-GI General Geosciences, Information Geosciences & Simulations

## [M-GI25]Environmental changes in mountainous area

convener:Keisuke Suzuki(Department of Environmental Sciences, Faculty of Science, Shinshu University), Yoshihiko Kariya(Department of Environmental Geography, Senshu University), Chiyuki Narama(新潟大学理学部理学科, 共同), Akihiko SASAKI(Department of Geography and Environmental Studies, Kokushikan University)

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Mountainous areas provide water resources to the populated downstream areas, protecting the diversity of ecosystem and providing tourism attraction. To access the mountain environment changes and mitigate the impacts of global warming influences, a cross-cutting session is proposed to share the scientific knowledge among various fields; such as climatology, hydrology, geography, glaciology, water/carbon/material cycle, eco-diversity, etc.

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## [MGI25-P13]The formations of temperature inversions and cold air pools in Kamikochi valley, the Japanese Alps

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Keywords:cold air pool, temperature inversion, mountain area

Meteorological measurements were conducted in Kamikochi valley, the Japanese Alps, to reveal weather conditions and factors that affect the development of cold air pools. Result showed that the frequency of temperature inversions increased in spring and autumn, and decreased in winter, roughly corresponding to the variation of monthly sunny-days ratio. Large proportion of temperature inversion days were seen for both migratory anticyclone synoptic type and summer synoptic type. Remarkably small value of both inversion frequency and intensity were connected with winter synoptic type. Both monthly sunny-days ratio and monthly appearance frequency of migratory anticyclone synoptic type had a significant positive relationship within the monthly ratio of temperature inversion days. In contrast to the variation pattern of inversion frequency, the intensity of inversions strengthened in winter and weakened in summer, corresponding to the annual variation of nighttime length. Case studies from typical nocturnal cold air pools in summer and winter suggested that more tenacious and deeper inversion layer was constructed in winter season in Kamikochi valley, primarily due to the longer night.