U022-P07   Room:Convention Hall   Time:May 22 10:30-13:00

Mitigation effect of small paddy fields in urban area on summer temperature

Fumie Toda[1]*

[1]Kanazawa University

Because of development of building lots, mixing of paddy fields and building estates is distinguished in rapid population growth area. Since paddy fields have high effect on mitigation of temperature, now urban heat island is viewed with suspicion, it is the critical issue how maintain paddy fields and how to make effective use of them. To solve these problems, it may make more sense for us to reveal the scale and layout of paddy fields that effective for mitigation of temperature. So this report intends to reveal the feature of mitigation effect on temperature of small paddy fields that exist in urban area.

Moving temperature observation was conducted at the surrounding area of Nonoichi town hall, Ishikawa Prefecture where large suburban paddy fields and small paddy fields that are mixed with building estates. As a result, distinct low-temperature range appeared at night and it spread 7.5 times as large as the total area of paddy fields. Then it was revealed that even small paddy fields have efficient effect on mitigation of temperature, if they exist at proper intervals. Besides heat balance observations at the small paddy field suggest that small paddy field have a greater tendency to exert mitigation effect at night than during daytime, because advection from urban zone have greater influence on small paddy fields during daytime than during nighttime. Furthermore it was suggested that mitigation effect fluctuate by growing stage of rice plants. That is, the mitigation effect of small paddy fields that are scattered consecutively is very efficient but not constant. So, it is the most effective way for mitigation of temperature to spread small paddy field consecutively over the leeward side of large suburban paddy fields.

Keywords: paddy field, mitigation effect on temperature, urban heat island, heat balance, moving observation