

# 住宅の床下換気における蒸発・凝縮の影響に関するCFD解析

## ❖ 研究目的

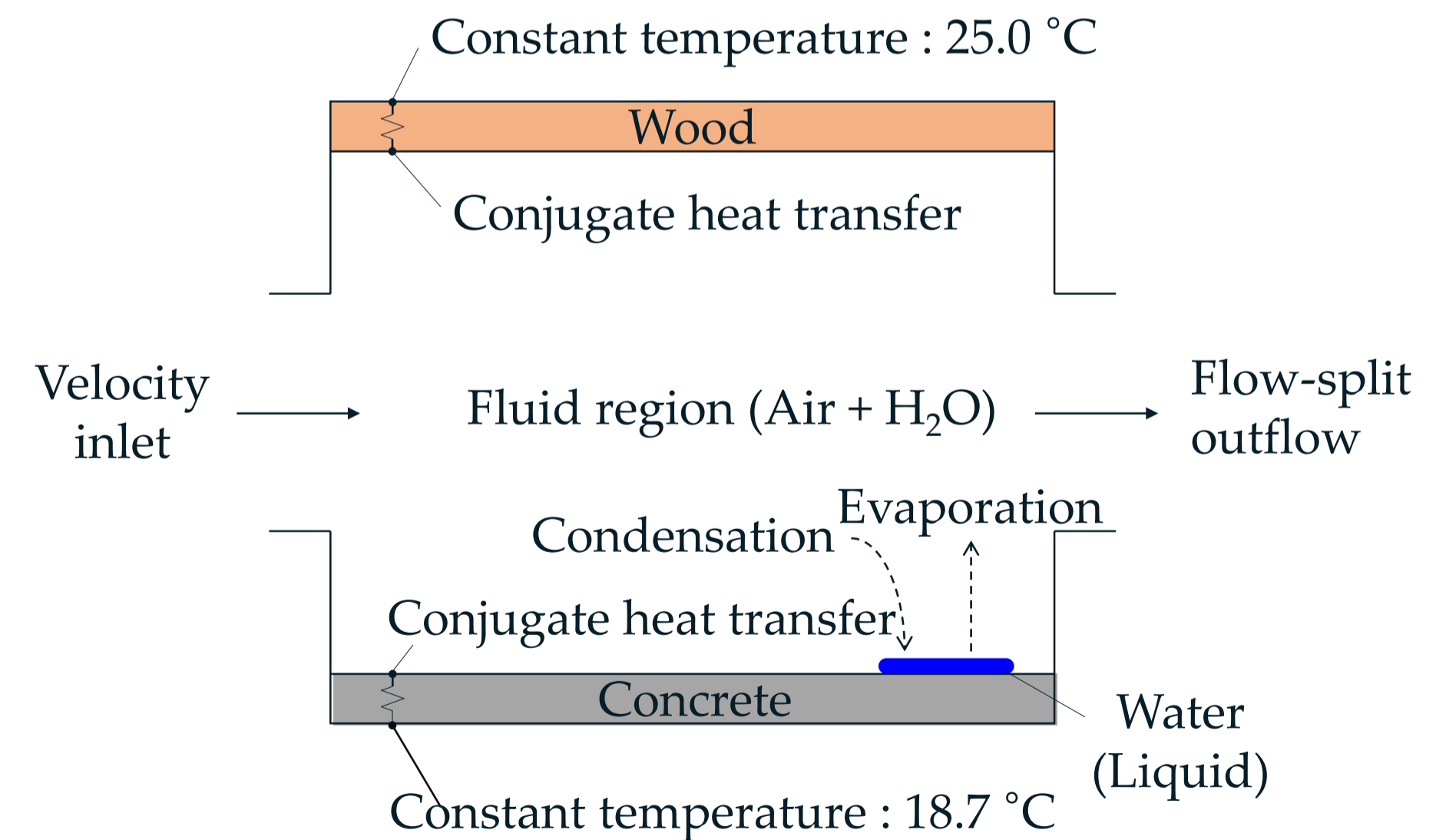
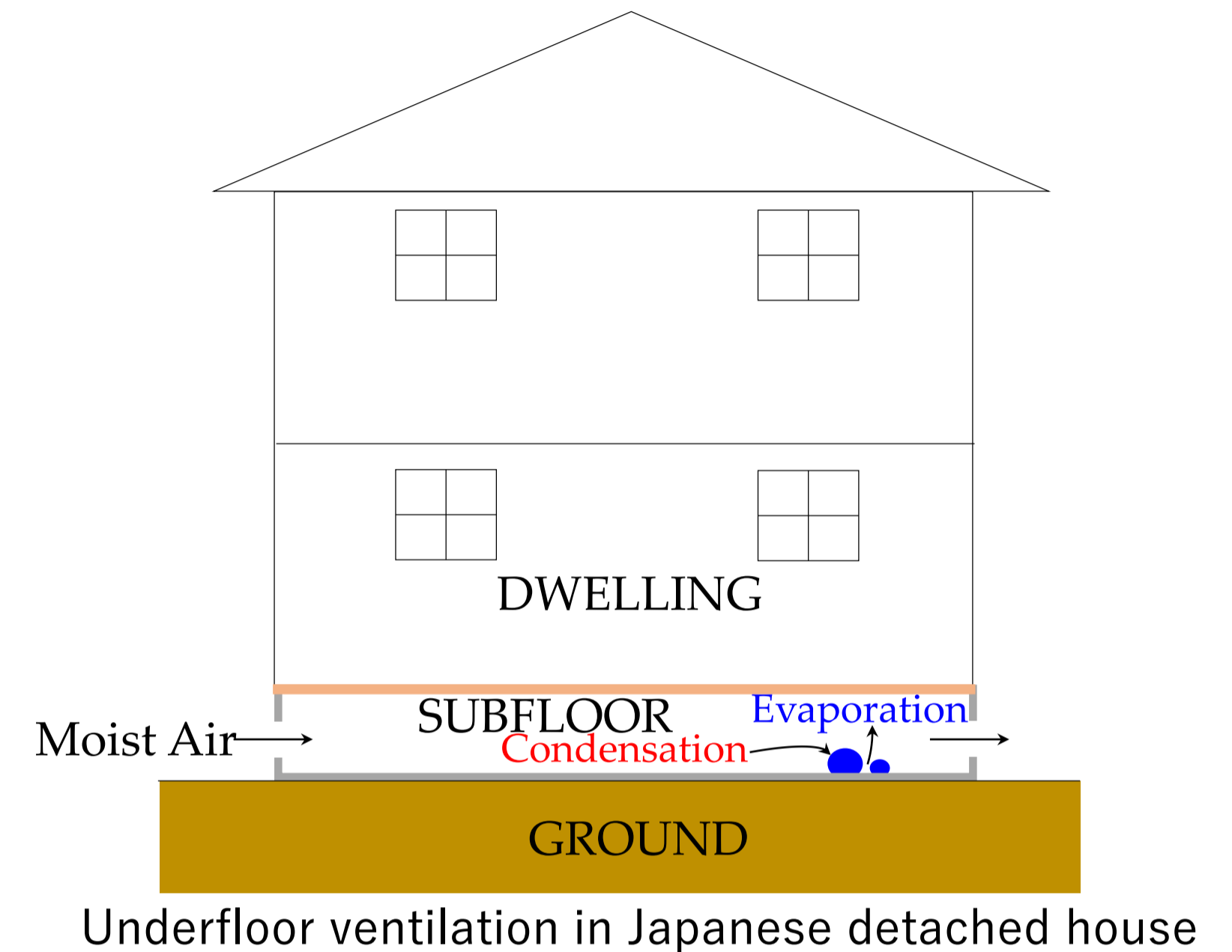
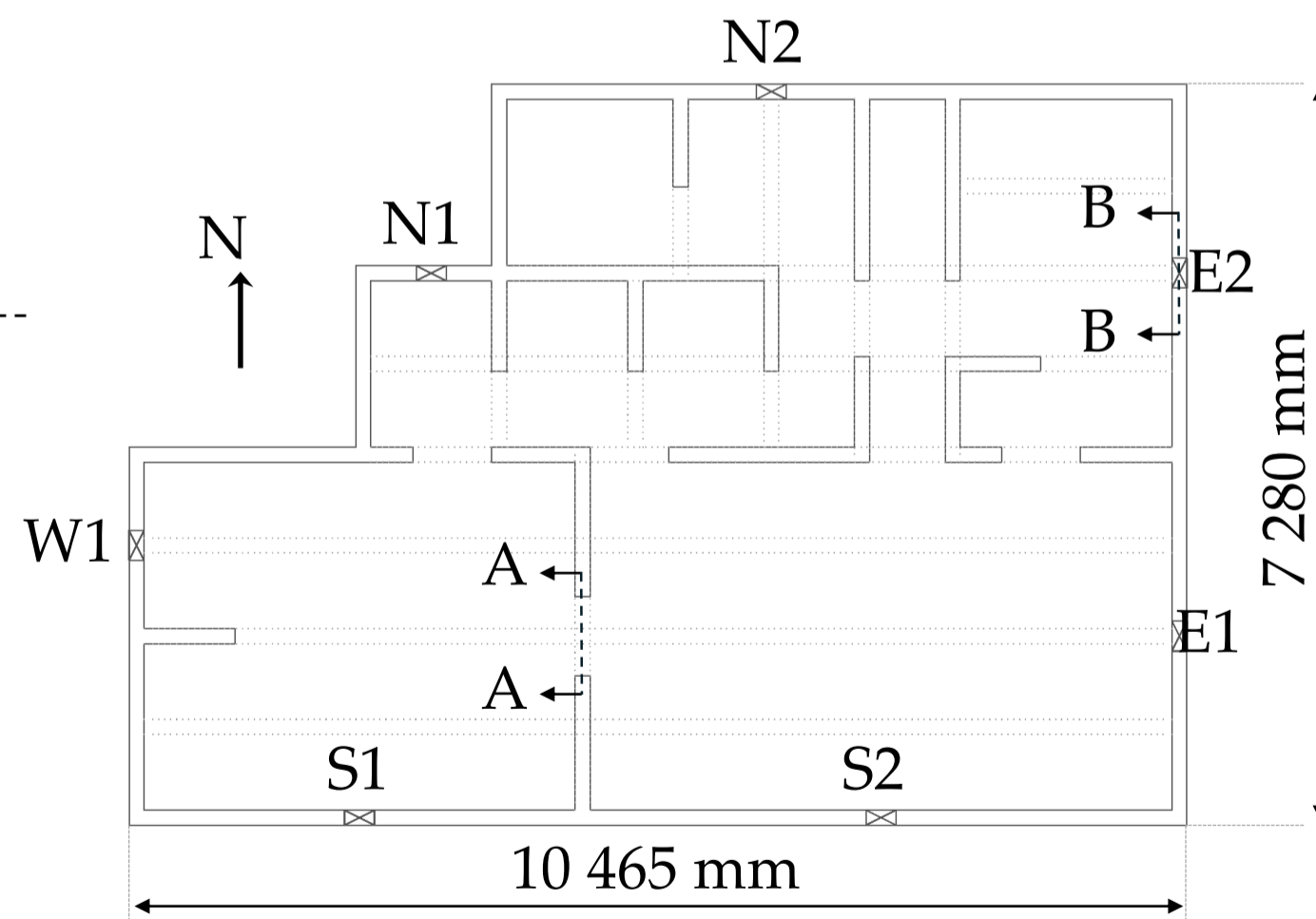
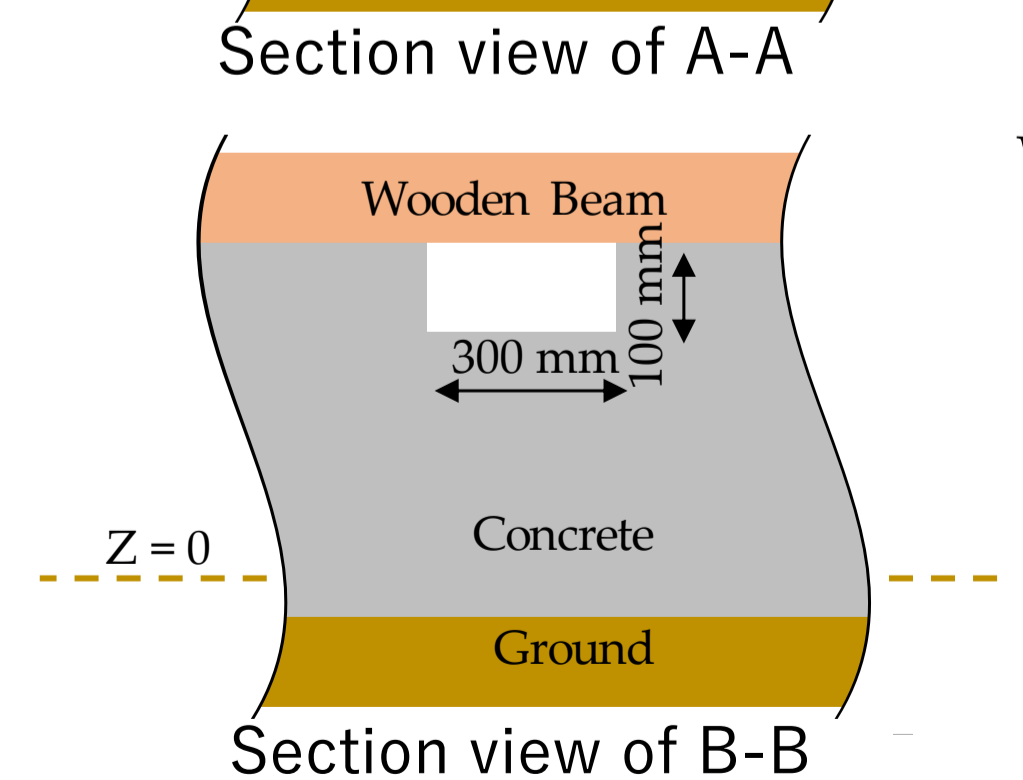
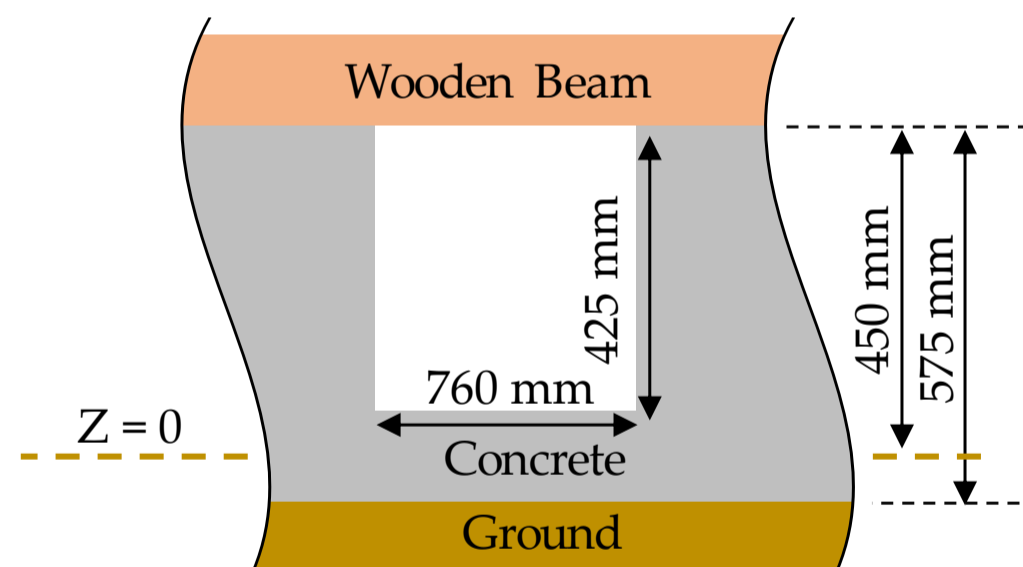
住宅の床下換気における蒸発・凝縮効果を確認して設計に活用

## ❖ 研究方法

CFDを用いて外部環境条件による床下換気の影響を検討

- 1) 外部環境が均一な条件
- 2) 外部環境が変動する条件 (24h)

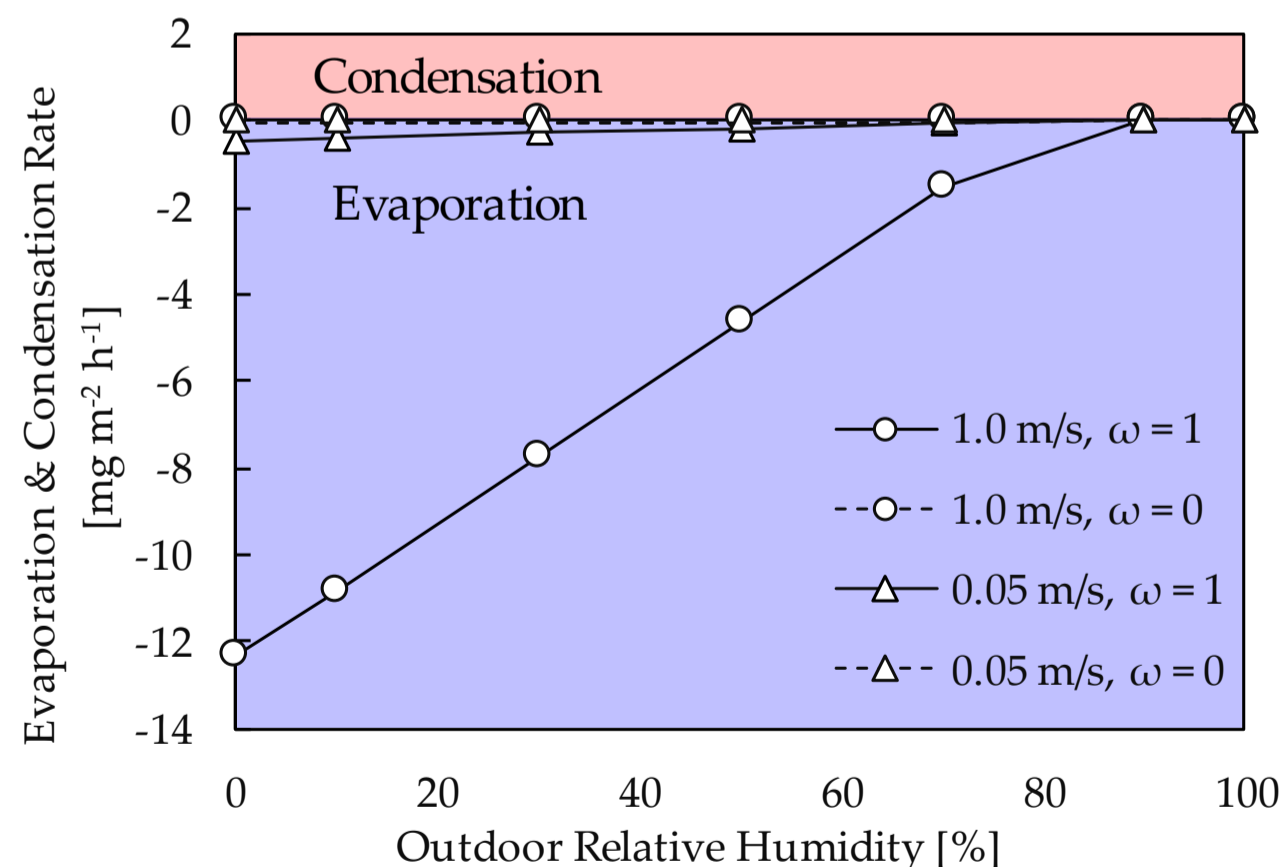
$$\text{濡れ比率 } (\omega) = \frac{\text{Wetted surface area [m}^2\text{]}}{\text{Concrete surface area [m}^2\text{]}}$$



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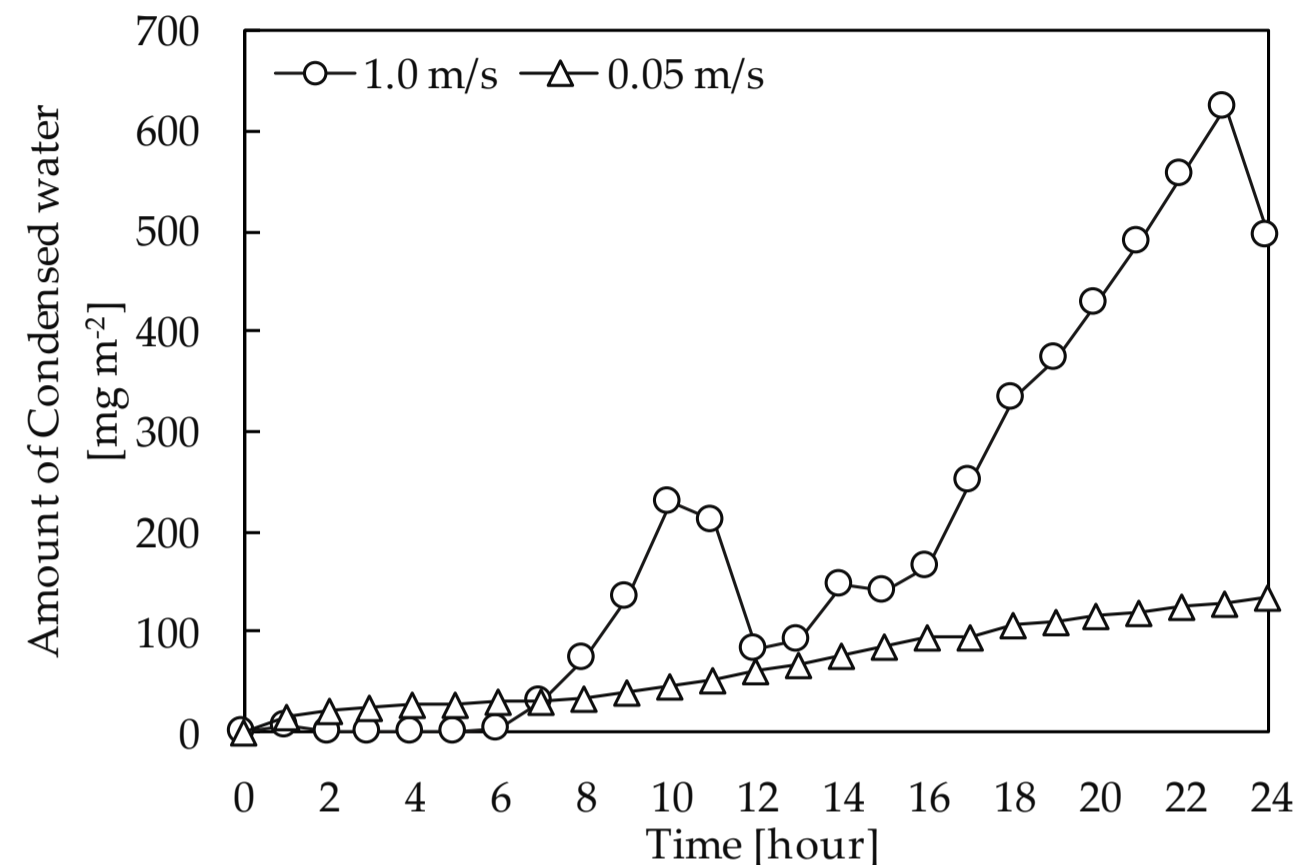
## ◆ 外部環境が均一な条件の下

Environmental conditions		
Outdoor condition (25 °C)		
Humidity [%]	Wind speed [m/s]	Wind direction
0	1.0	South
10		
30		
50		
70		
90		
100	0.05	South
0		
10		
30		
50		
70		
90		
100		

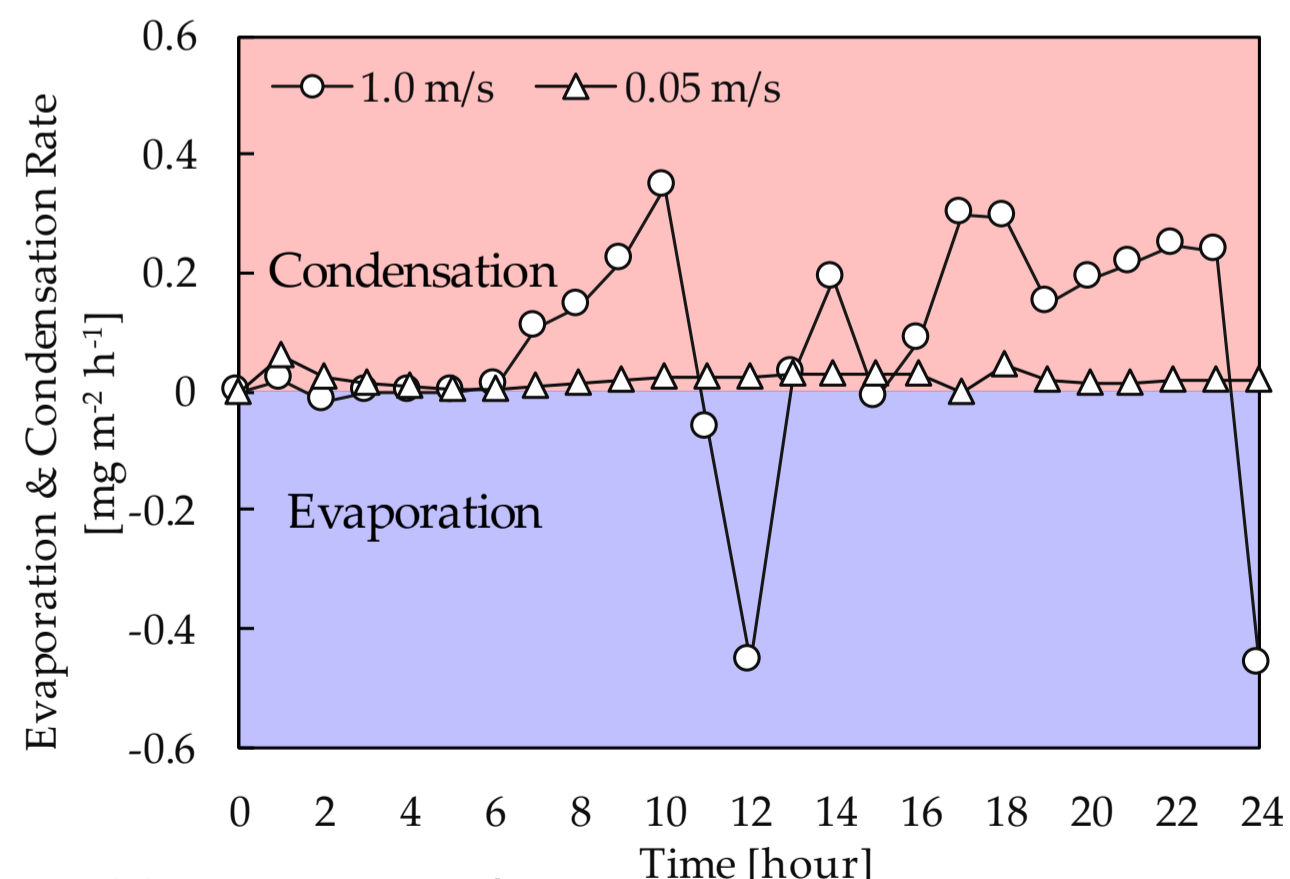


Evaporation and condensation effects relevant to the outdoor environmental conditions and RWS on the surface of the concrete on the underfloor space

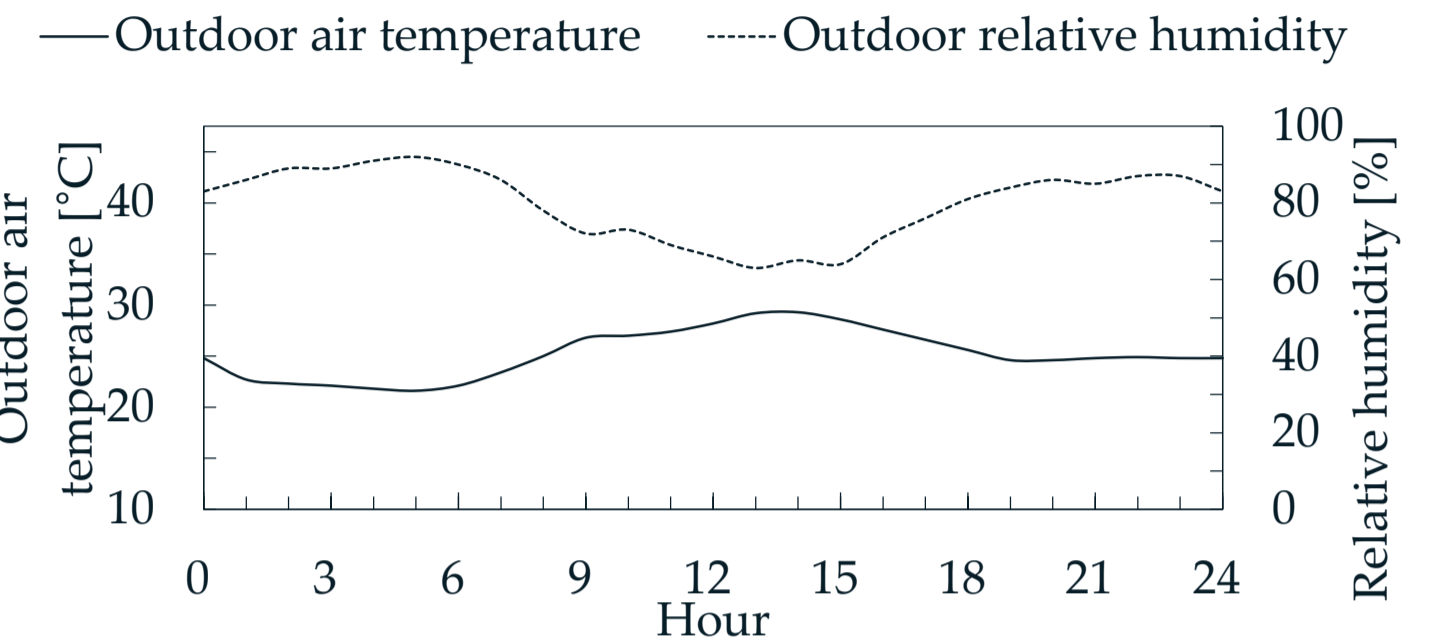
## ◆ 外部環境が変動する条件の下



Amount of condensed water of the underfloor space relevant to evaporation and condensation during a day.

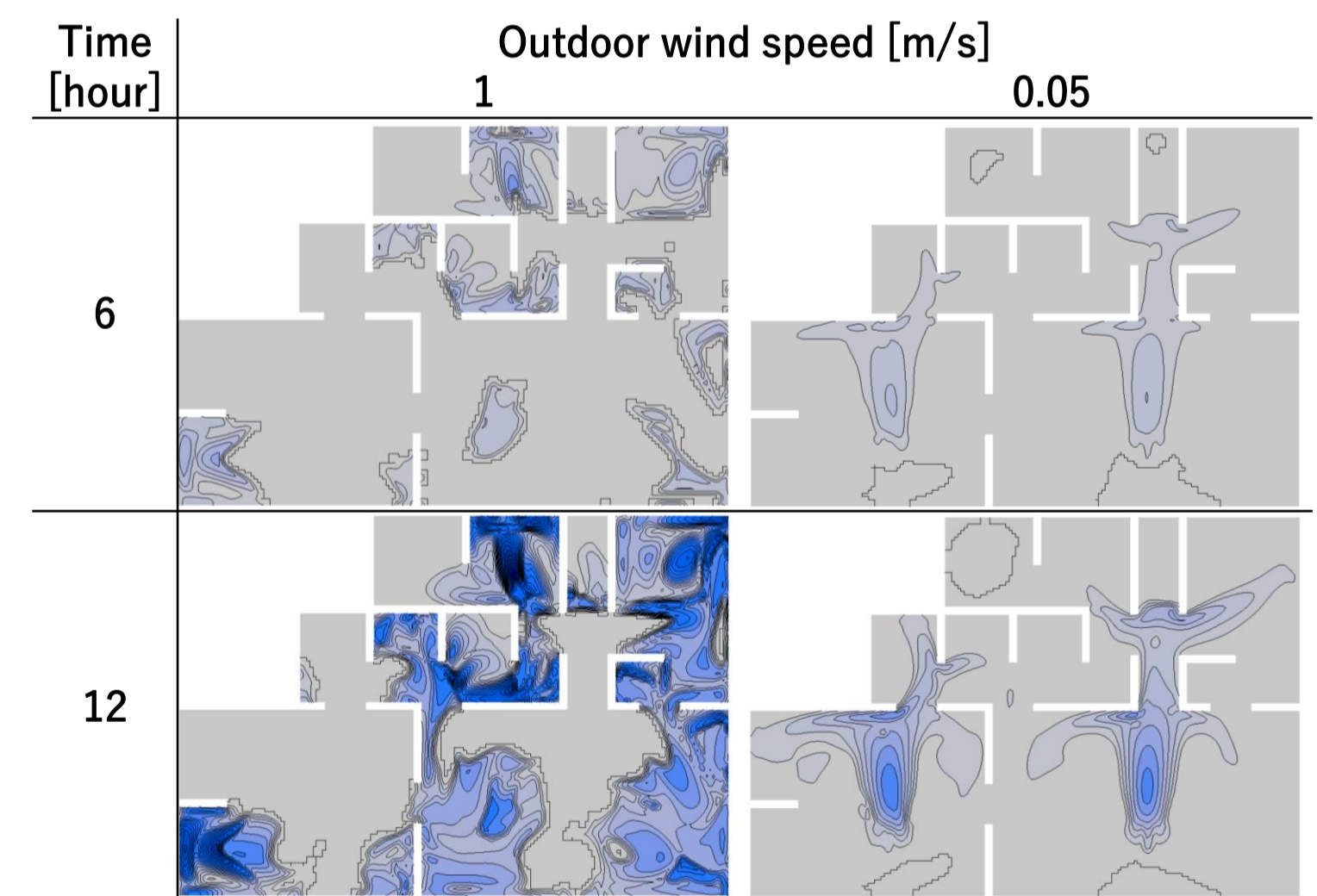


Variation in the average evaporation and condensation rate on the surface of the underfloor space during a day.



Variations in the daily outdoor air temperature and relative humidity in Tokyo, Japan (June 15).

## ◆ 時間変化による結露部位



Variation in the condensed water thickness on the surface of the concrete during a day