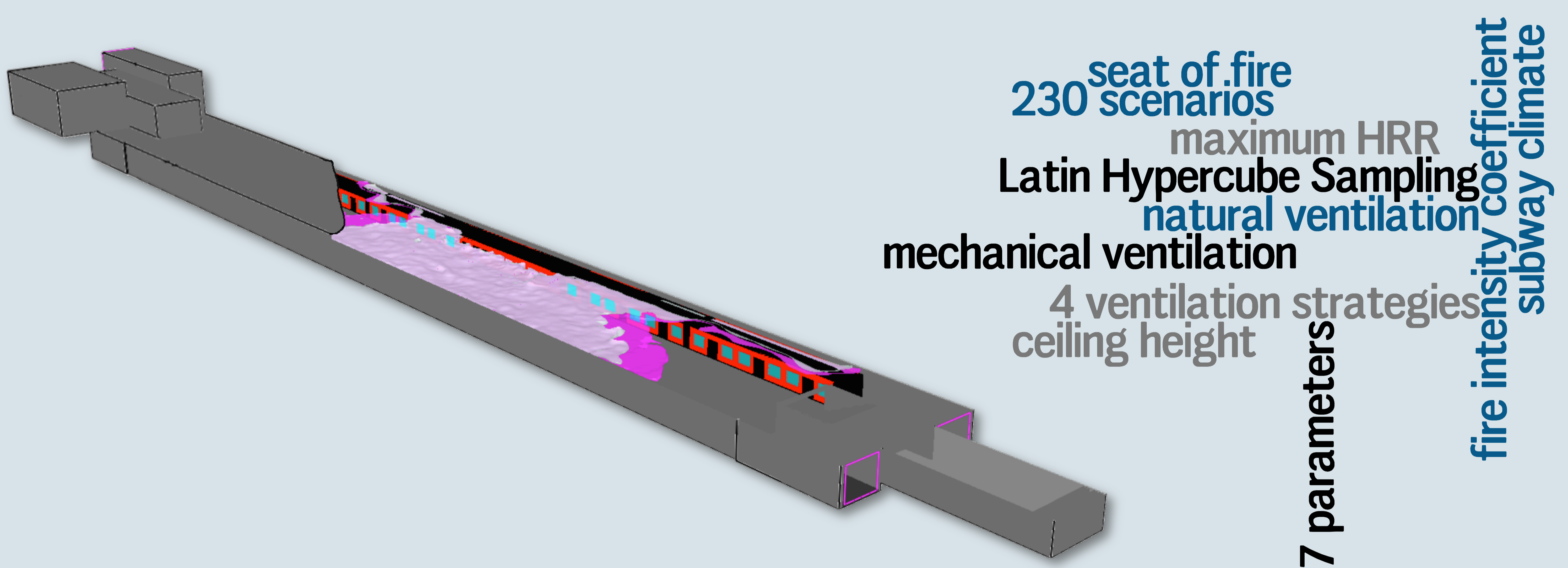


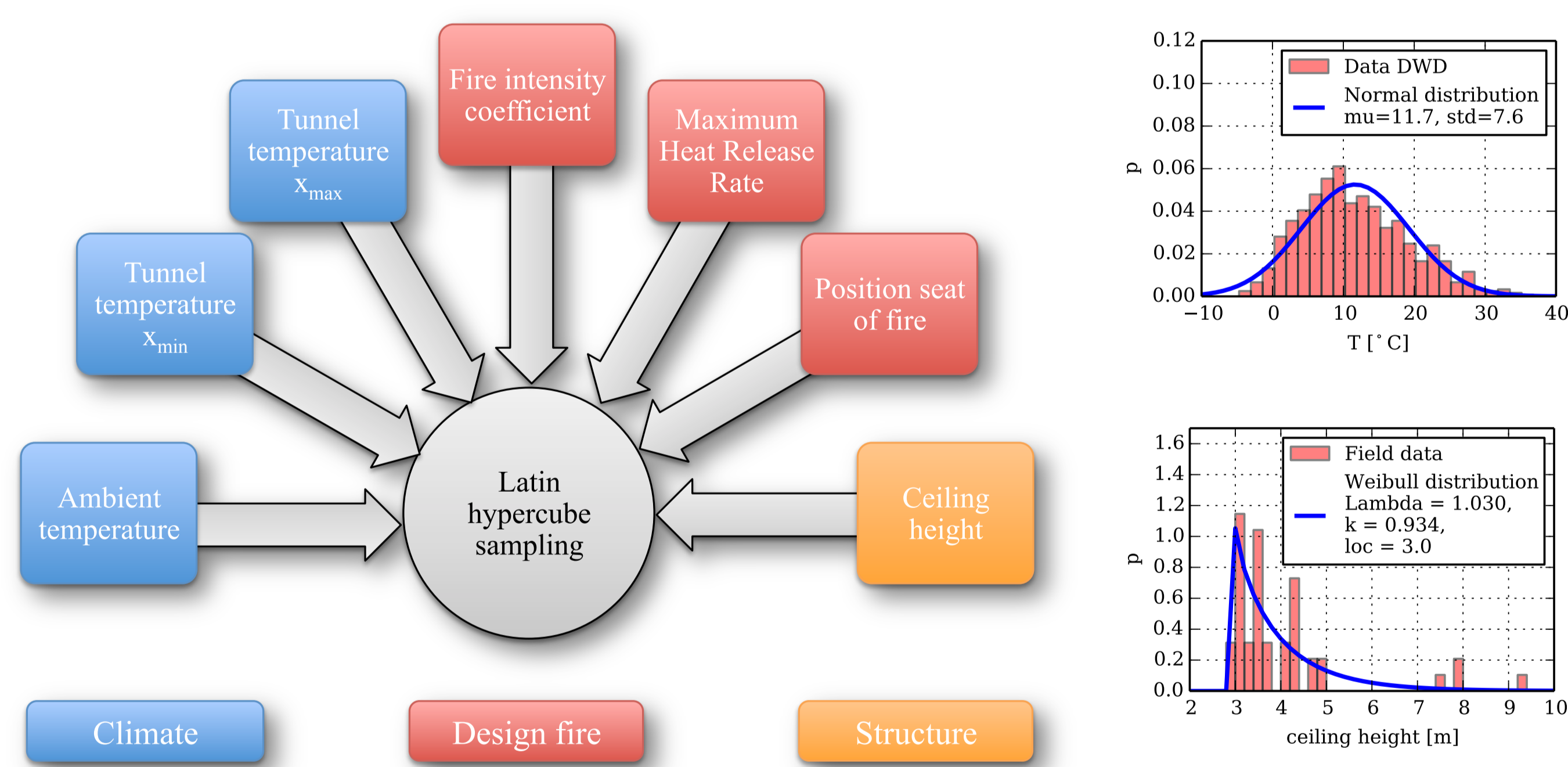
SMOKE AND HEAT EXTRACTION IN UNDERGROUND STATIONS

Evaluation of different concepts in a representative geometry

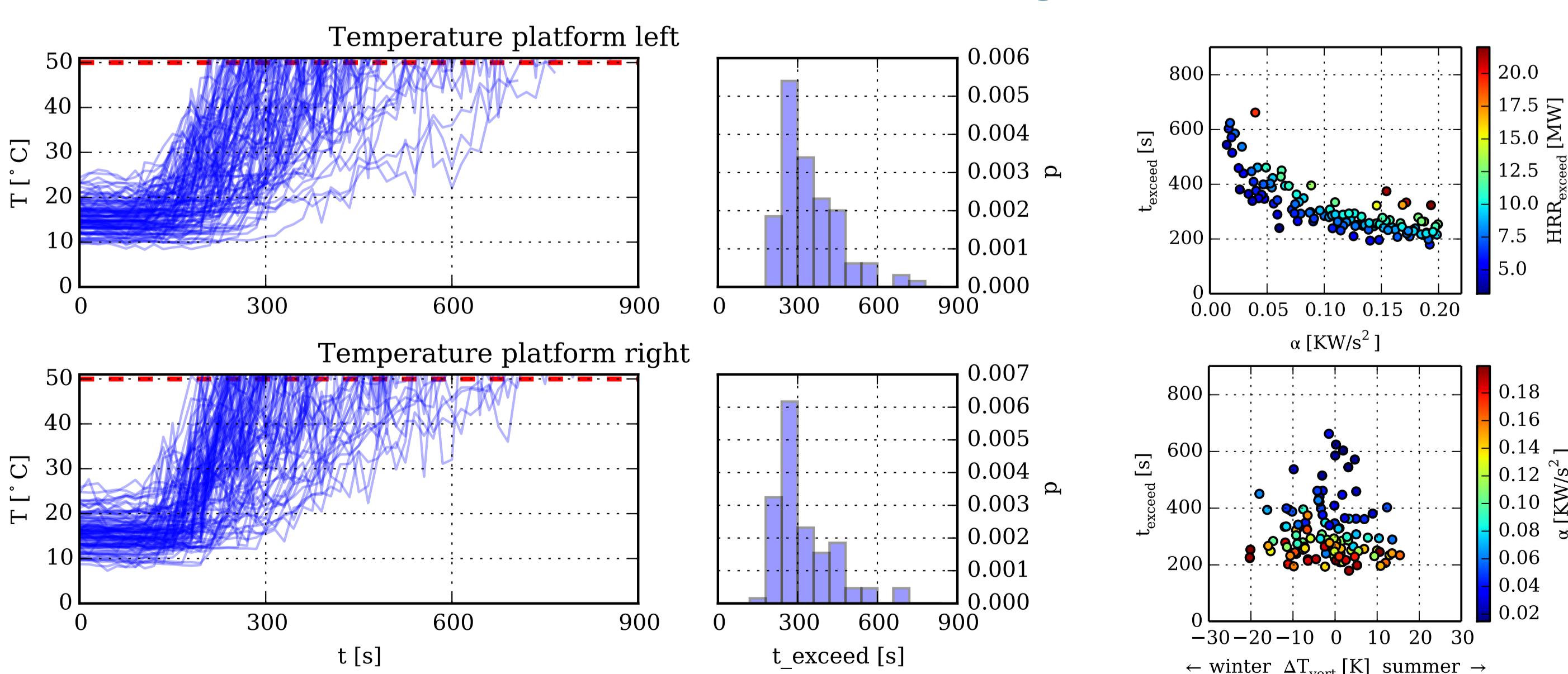


Pilot study

- structural standard types derived from field data
- natural ventilation
- Latin Hypercube Sampling:



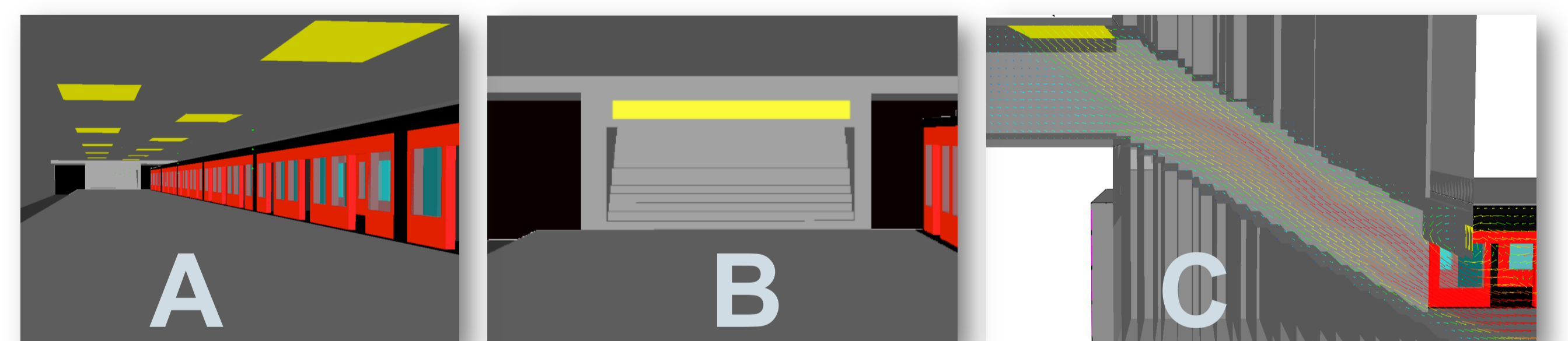
- in the first instance: exceedance of tenability temperatures at the platform edges:



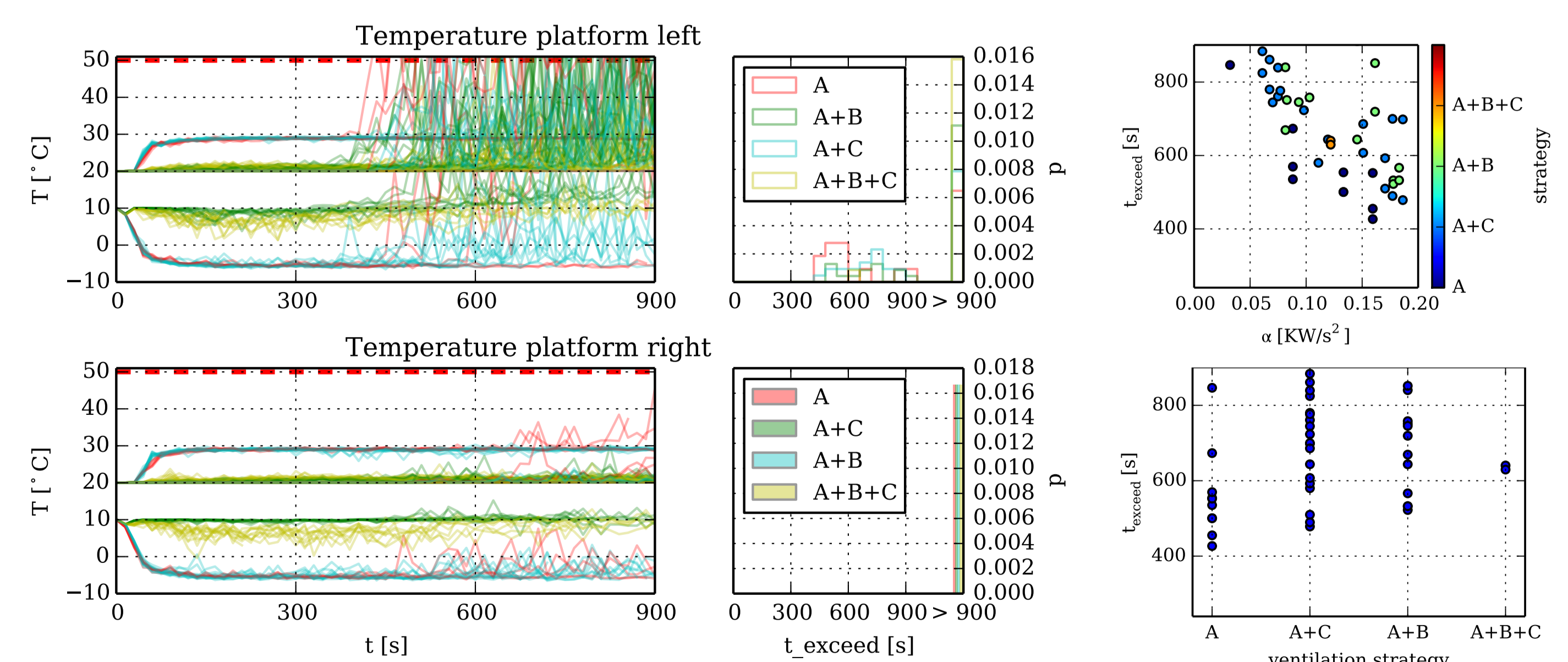
- tenability variation from 179 to 580 s
- highest correlation: fire intensity coefficient
- highest tenability periods at low temperature gradients between underground and surface

Concept study

- dimension reduction based on the insights of the pilot study
- 4 combinations out of the following mechanical ventilation strategies:
 - ceiling extraction (A)
 - punctual extraction at the stairway lintel (B)
 - inlet air through the stairways (C)



- gas temperatures strongly influenced by ambient temperatures and inlet air flow regimes:



- increase of tenability periods from 426 to > 900 s
- revealed influence position seat of fire

Outlook: extension by assessment of optical and toxic smoke magnitudes