

# Field Observation of Illumination and Daylight on Streets in Historical Sites

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## PURPOSE:

- To learn the actual light conditions on various types of streets and figure out the characteristics of street lighting on historical sites.

## METHODOLOGY:

- Light environments of twelve streets in eight sites below in Shimane prefecture of Japan were observed. Eight to sixteen observation points were distributed evenly on each street. One or two observers moved between the points at around noon and 9 p.m. to measure the illuminance levels in six directions equivalent to each plane of a cube.



(a) Matsue-ekimae [City, Contemporary, Busy]  
Business area in front of Japan Railways Matsue station



(b) Chuo-shotengai [City, Contemporary, Busy]  
Small shopping arcade close to Japan Railways Matsue station



(c) Isemiya [City, Contemporary, Busy]  
Nightlife area close to Japan Railways Matsue station



(d) Kitahori [City, Contemporary, Quiet]  
Secluded residential area close to the city office and Matsue Castle



(e) Katakuchi [Rural, Contemporary, Busy]  
-A: seaside  
-B: central  
Fishing village, 10 km northwest from the center of Matsue city



(f) Shiomi-nawate [City, Historical, Busy]  
-A: along the houses  
-B: waterside  
Old samurai residential street along the water ways surrounding Matsue Castle

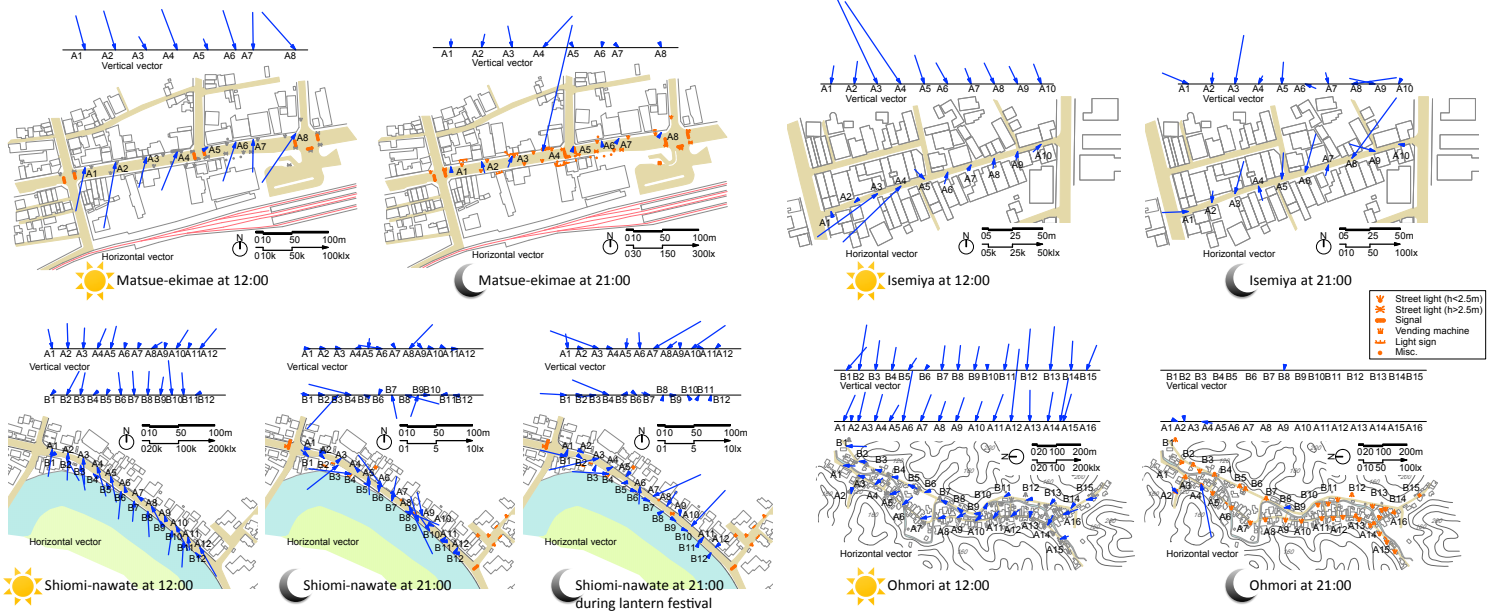


(g) Ohmori [Rural, Historical, Quiet]  
-A: central  
-B: by-path  
Mountain village, old silver mining town designated as a World Heritage

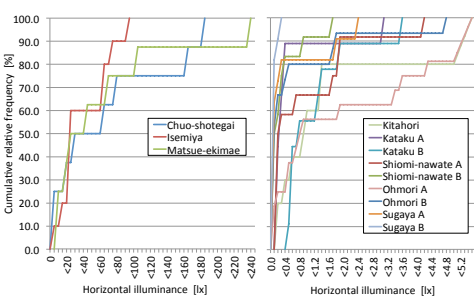


(h) Sugaya [Rural, Historical, Quiet]  
-A: central  
-B: riverside  
Mountain village, old steel manufacturing town

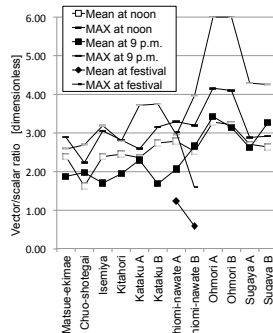
## ILLUMINANCE VECTOR:



## HORIZONTAL ILLUMINANCE:



## VECTOR/SCALAR RATIO:



## DISCUSSION:

The prominent darkness in the historical areas can enhance the night atmosphere appropriate to a historical site. However, too little light would increase pedestrians' anxieties since the minimum level for street lighting is 3 lx in residential areas (JIS Z9111). And, the exceptionally long illuminance vector from the vending machine can easily wash out the atmosphere and cause glare, but cannot brighten other areas and eliminate anxieties due to insufficient illumination. In contrast, at Shiomi-nawate, the vertical illuminances at many points are longer, and the pedestrians will not feel it's too dark. They easily notice that the light strength and direction shift every second, and this might make it more interesting. Consequently, the example of Shiomi-nawate will be quite suggestive for the other historical areas which are equally dark.