

ディスカッション

「*Verification*と*Validation*。

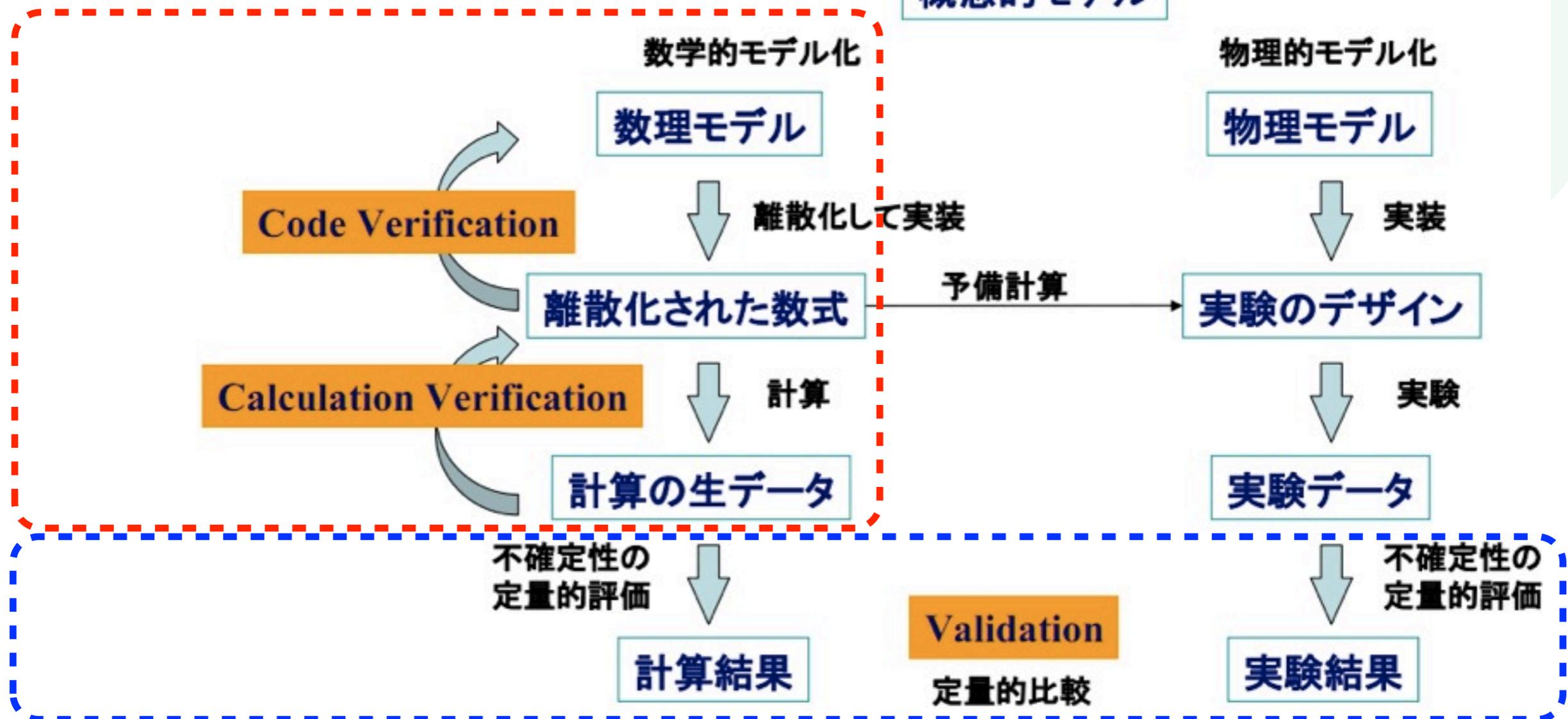
そして*Contribution*」

今野 雅 (東京大学、オープンCAE学会)

# 米国機械学会におけるV&Vの概念

## Verification

オープンソース vs クローズドソース



## Validation

オープンもクローズドも土俵は同じ

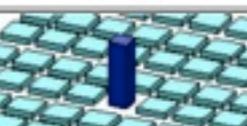
図引用: 高野ほか, ASME V&Vの概要, 第15回計算工学講演会, 2010.5

[http://jsces.org/research/hqc/gallery\\_file/08\\_V&V\\_takano.pdf](http://jsces.org/research/hqc/gallery_file/08_V&V_takano.pdf)

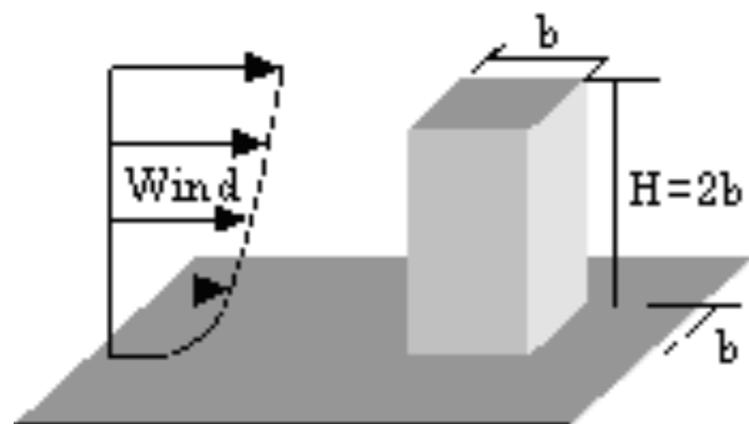
# 日本建築学会風環境ベンチマーク(AIJ-PWEAB)

日本建築学会のWG(持田、富永ら)

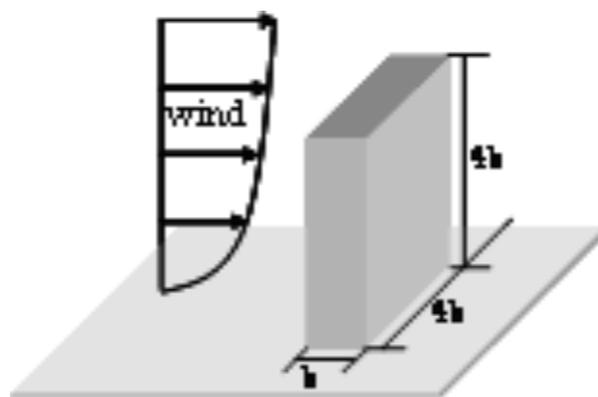


	test case	dataset	Ref.
A	2:1:1 shape building model 	Data file : <a href="#">CaseA(1_1_2).xls</a>	[1]
B	4:4:1 shape building model 	Data file : <a href="#">CaseB(4_4_1).xls</a>	[2][3]
C	Simple Building blocks 	Data file : <a href="#">CaseC(City_blocks).xls</a>	-
D	A high-rise building in city blocks 	Data file : <a href="#">CaseD(Highrise+Blocks).xls</a> CAD File(DXF) : <a href="#">CaseD_dxf.zip</a> CAD File(MCD) : <a href="#">CaseD_mcd.zip</a>	[5]
E	Building complexes with simple building shape in actual urban area (Niigata) 	Data file : <a href="#">CaseE(Niigata).xls</a> CAD File(DXF) : <a href="#">CaseE_dxf.zip</a> CAD File(MCD) : <a href="#">CaseE_mcd.zip</a>	[6]
F	Building complexes with complicated building shape in actual urban area (Shinjuku) 	Data file : <a href="#">CaseF(Shinjuku).xls</a> CAD File(DXF) : <a href="#">CaseF_dxf.zip</a> CAD File(MCD) : <a href="#">CaseF_mcd.zip</a> CAD File(STL) : <a href="#">CaseF_stl.zip</a>	[6]
G	Two-dimensional pine tree 	Data file : <a href="#">CaseG(Tree).xls</a>	[7]

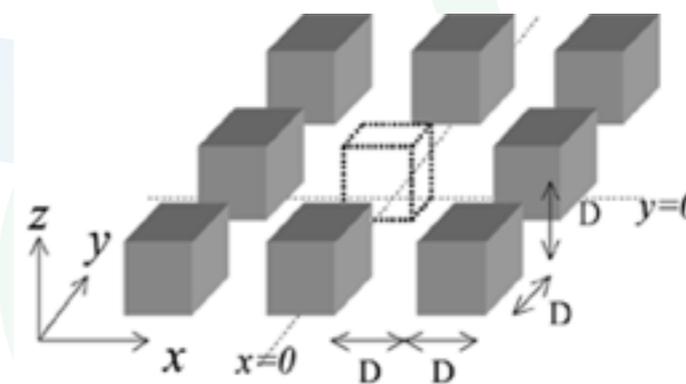
# AIJ-PWEABのケース



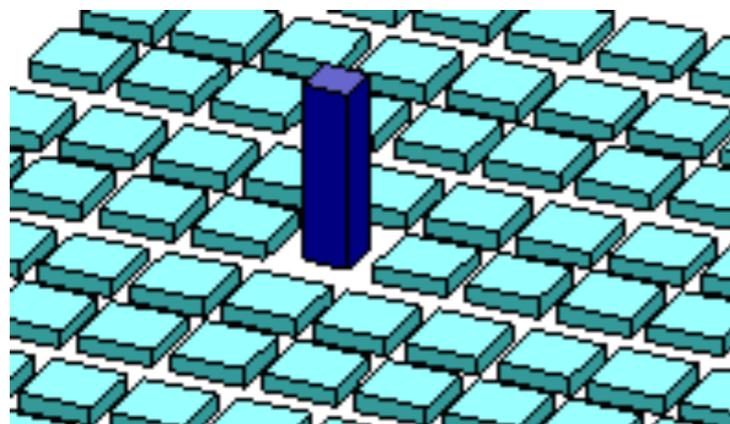
Case **A**  
(2:1:1 shape)



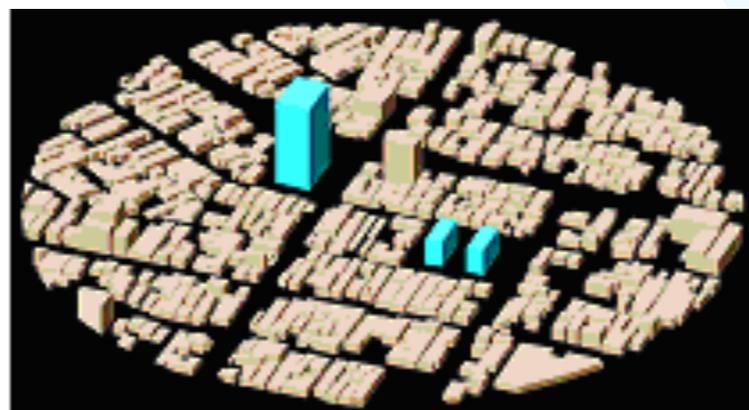
Case **B**  
(4:4:1 shape)



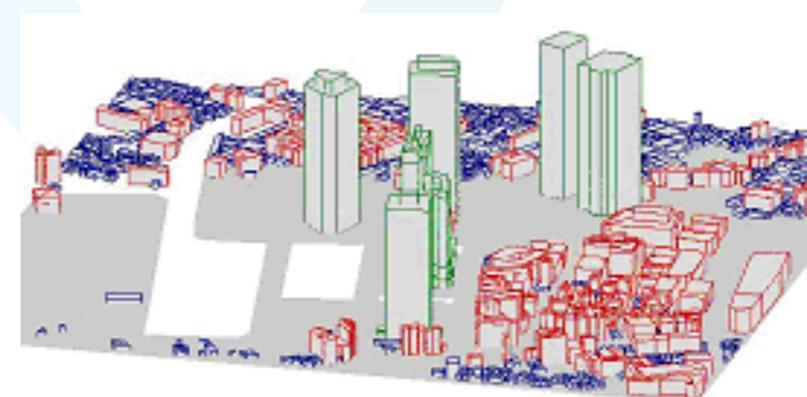
Case **C**  
(Simple blocks)



Case **D**  
(High-rise bldg.)



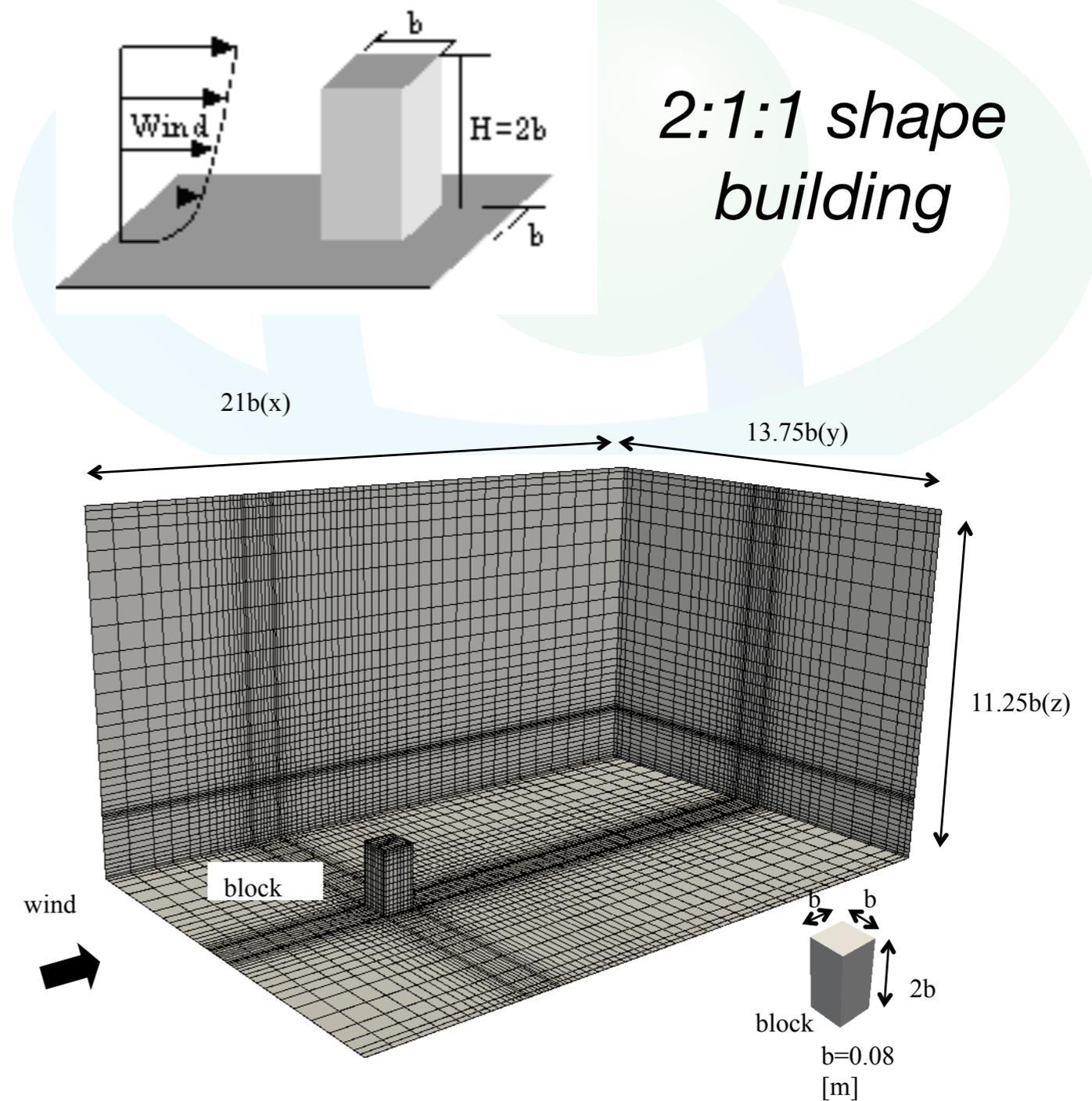
Case **E**  
(Niigata)



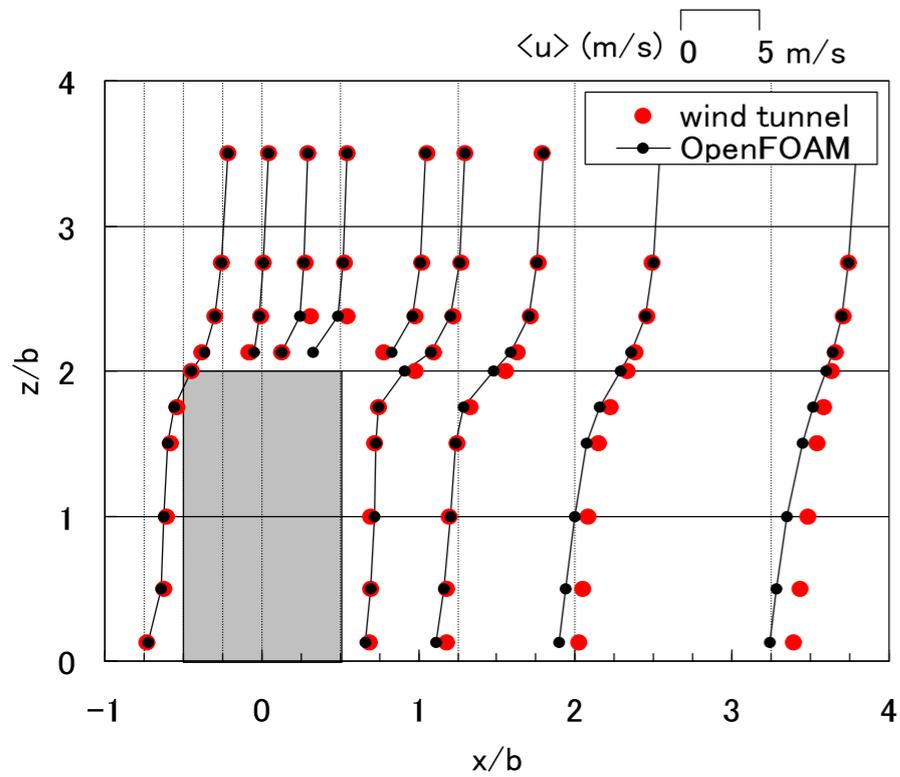
Case **F**  
(Shinjuku, Tokyo)

# Case Aの計算条件

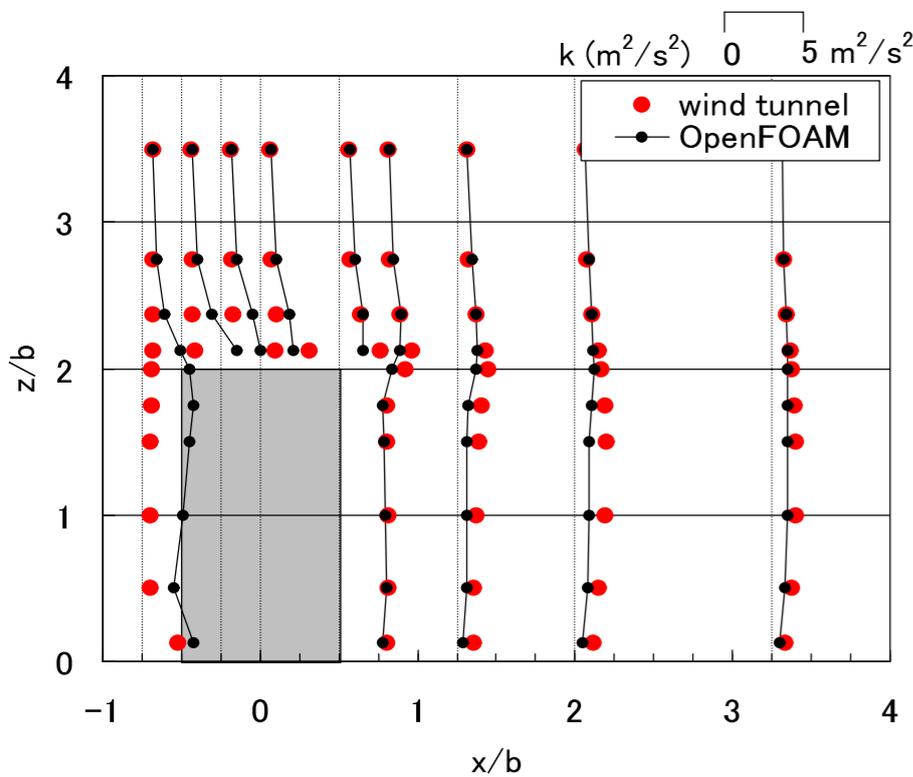
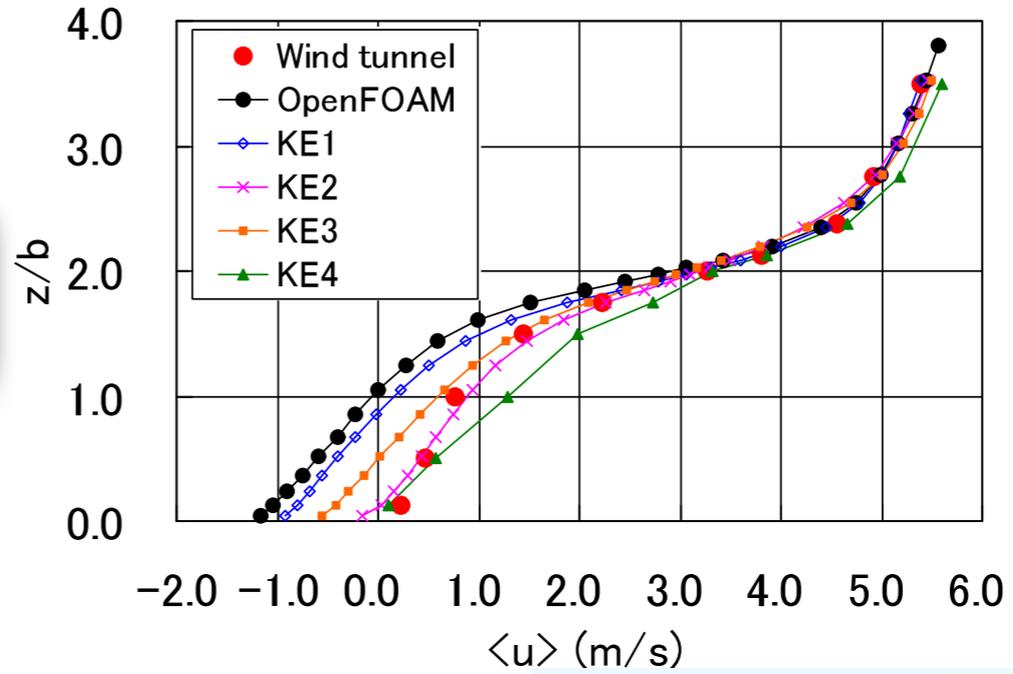
<b>Mesh</b>	Same as specified in the guidebook
<b>Inflow</b>	Interpolate from wind tunnel results
<b>Top &amp; Side wall</b>	Zero gradient
<b>Ground and bldg. wall</b>	Generalized log law for a smooth wall
<b>Turbulence model</b>	Standard k-epsilon
<b>Advection scheme</b>	TVD(Limited linear)
<b>Algorithm</b>	SIMPLE (simpleFoam)



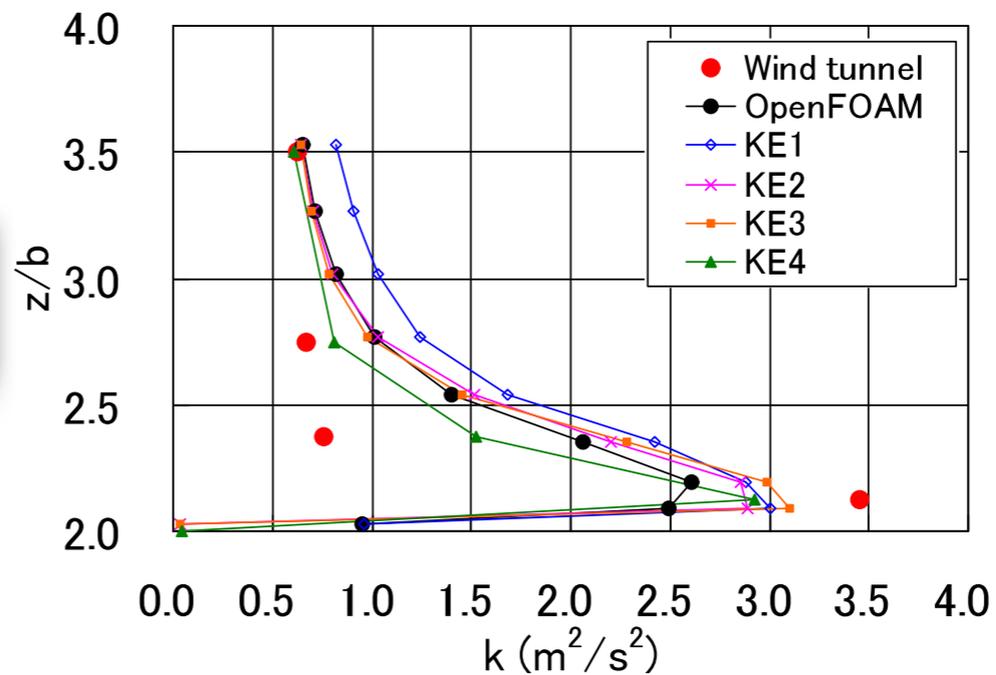
# Case AのValidation結果



$U$



$k$



# OpenFOAM V&V SIG とレポジトリ

SVNレポジトリ: <http://www.opencae.jp/svn/OpenFOAM-VandV-SIG>



The screenshot shows the OpenCAE website interface. At the top left is the OpenCAE logo, a stylized atom with a green nucleus and blue orbits. To its right is the text "OpenCAE" in a large, bold, black font. Below the logo and text are navigation links: "Login", "Preferences", "Help/Guide", "About Trac", and "Register". A search bar with a "Search" button is also present. Below these are tabs for "Wiki", "Blog", "Timeline", "Browse Source", "Search", and "フォーラム". The "Wiki" tab is selected, and the page title is "wiki: OpenFOAM-VandV-SIG". Below the title are links for "Start Page", "Index", and "History", with a note "Last modified 5 weeks ago".

## OpenFOAM V&V SIG

[ [Japanese](#) ]

### Short description

OpenFOAM Verification and Validation Special Interest Group in Japan.

### V&V cases

- [AIJ-PWEAB](#) AIJ (Architectural Institute of Japan) guidelines for practical applications of CFD to pedestrian wind environment around buildings
- [ERCOFTAC](#) ERCOFTAC SIG 15 Test Case Database

### Repository

#### URI of our repository

<http://www.opencae.jp/svn/OpenFOAM-VandV-SIG/>

#### How to check out our repository

```
svn co http://www.opencae.jp/svn/OpenFOAM-VandV-SIG/
```

- AIJ-PWEAB
- ERCOFTAC-SIG15
- ソルバー
- ユーティリティー

皆さんもSIGに参加くださり、各自のValidationケースをコミットして、CAEコミュニティにContribute してください!