

ArcGIS 辅助建筑物阴影分析

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摘要:

ArcGIS10.1

Model Builder

ArcGIS

关键词: ArcGIS; Model Builder;

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The Analysis on the Shadow of Building With the ArcGIS

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Abstract: Using a single building as the research object in ArcGIS10.1, the shadow will be created and calculated with the help of sunshine analysis theory and shadow analysis tools. The shadow of certain time can be simulated as well. Models which can be used universally are made in Model Builder, and it extends the ArcGIS shadow analysis function. The research results can help to provide the scientific basis for greening and a reference for optimizing the structure of buildings.

Keywords: ArcGIS; Model Builder; shadow simulation; spatial analysis

max SketchUp GIS Water Slade
GIS ArcGIS 3ds
CAD THSEA CAD^[2] SUN
[1] HYSA FastSUN
AutoCAD AutoCAD
AutoCAD .dxf AutoCAD
AutoCAD [3]

1 研究思路

CAD

GIS

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2)

3)

4)

90

5)

6)

7)

DATE_TIME

AZIMUTH

VERT_ANGLE

ArcScene

ArcGlobe

4 单日建筑物阴影时长定量求取

4.1 单日建筑物阴影时长定量求取的分步实施

4.1.1 对太阳阴影体工具的简单检验

ArcGIS10.1

2014 6 21

φ 34.145° N 172

S =4.859

S =19.141

ArcGIS

[7]

108.87° E

105° E

-0.0481 h

$$H = H + 0.7901$$

(3)

$$H = 5.6491$$

$$H = 19.9311$$

" "

5 37 37

19 54 50

ArcGIS

DATE_TIME

"

" "

"

4.1.2 三维建筑简单模型的构建

30 m

Sketchup

ArcScene [8]

4.1.3 太阳阴影体求取

ArcScene

2014 6

21 5 38 57

19 55 51

2 min

4.1.4 二维阴影覆盖面的生成

” 0.001 m “3D” “3D” 0.001 m “ ”

4.1.5 字段添加与赋值

2

4.1.6 阴影覆盖面分离

429

429

OID

4.1.7 矢栅转换

“ ”

0.5 m

4.1.8 建筑物周边阴影时长图的获取

“ ”

1 d

60

[9]

4.1.9 建筑物阴影的时态模拟

“ ”

[10]



图 1 不同时刻阴影展示 Fig.1 Shadow show at different times

4.2 建筑物阴影时长定量求取的通用模型构建

1

2

3

4



图 2 模型参数输入界面

Fig.2 Model parameter input interface

5 结语

ArcGIS

Model Builder

ArcGIS

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