

# 模型のデータ



## materials.rad

```

## default material
void plastic sketchup_default_material
0
0
5 0.4 0.4 0.4 0 0

## material conversion from Sketchup rgb color
void plastic 0004_HotPink
0
0
5 0.8500 0.3500 0.6000 0.000 0.000

## RAL3000
void plastic RAL3000
0
0
5 0.25 0.078 0.031 0 0
## 0020_Red
void alias 0020_Red RAL3000

## material conversion from Sketchup rgb color
void plastic 0044_DarkGoldenrod
0
0
5 0.6133 0.4467 0.0367 0.000 0.000

## material conversion from Sketchup rgb color
void plastic 0064_Chartreuse
0
0
5 0.4233 0.8500 0.0000 0.000 0.000

## material conversion from Sketchup rgb color
void plastic 0097_DeepSkyBlue
0
0
5 0.0000 0.6367 0.8500 0.000 0.000

## material conversion from Sketchup rgb color
void plastic Carrera_Marble
0
0
5 0.6900 0.6900 0.6900 0.000 0.000

## material conversion from Sketchup rgb color
void glass Cladding_Stucco_White
0
0
3 0.6667 0.6667 0.6667

## material conversion from Sketchup rgb color
void plastic Plastic_Red
0
0
5 0.8167 0.4200 0.0033 0.000 0.000

## material conversion from Sketchup rgb color
void plastic Polished_Concrete_New
0
0
5 0.6667 0.6667 0.6767 0.000 0.000

## material conversion from Sketchup rgb color
void plastic Polished_Concrete_Old
0
0
5 0.7633 0.7633 0.7633 0.000 0.000
    
```

- 0004\_HotPink.rad
- 0020\_Red.rad
- 0044\_DarkGoldenrod.rad
- 0064\_Chartreuse.rad
- 0097\_DeepSkyBlue.rad
- Carrera\_Marble.rad
- Cladding\_Stucco\_White.rad
- Plastic\_Red.rad
- Polished\_Concrete\_New.rad
- Polished\_Concrete\_Old.rad

## scene.rad

```

lxform ./materials.rad

lxform objects/Cladding_Stucco_White.rad
lxform objects/Polished_Concrete_Old.rad
lxform objects/Plastic_Red.rad
lxform objects/Carrera_Marble.rad
lxform objects/Polished_Concrete_New.rad
lxform objects/0097_DeepSkyBlue.rad
lxform objects/0020_Red.rad
lxform objects/0064_Chartreuse.rad
lxform objects/0044_DarkGoldenrod.rad
lxform objects/0004_HotPink.rad
    
```

## sky.rad

```

# gensky 12 25 12:30JST -a 47 -o -141
# Local solar time: 12.91
# Solar altitude and azimuth: 18.5 13.2
# Ground ambient level: 10.1

void light solar
0
0
3 4.93e+06 4.93e+06 4.93e+06

solar source sun
0
0
4 -0.217318 -0.923182 0.317029 0.5

void brightfunc skyfunc
2 skybr skybright.cal
0
7 1 4.44e+00 7.98e+00 3.27e-01 -0.217318
-0.923182 0.317029
    
```

## outside.rad

```

skyfunc glow sky_glow
0
0
4 .9 .9 1.15 0

sky_glow source sky
0
0
4 0 0 1 180

skyfunc glow ground_glow
0
0
4 1.4 .9 .6 0

ground_glow source ground
0
0
4 0 0 -1 180
    
```

照明器具なし

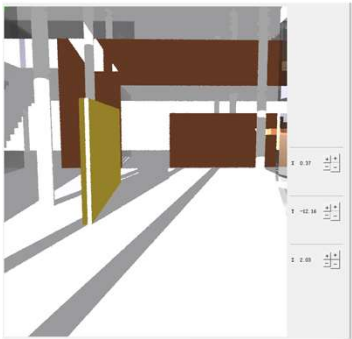
## 課題 1

### ①バイナリファイル作成

```
oconv materials.rad sky.rad outside.rad scene.rad>dlights.oct
```

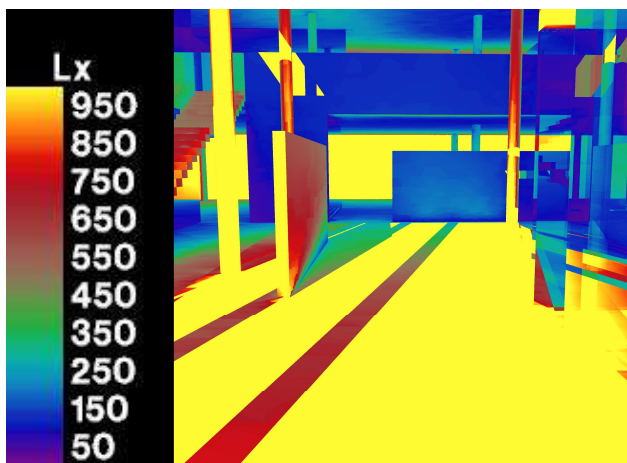
### ②画像の確認

```
rvu -vp 0.37 -12.16 2.03 -vd 0.42 10.18 -1.36 -av .5 .5 .5 dlights.oct
```



### ③画像の作成

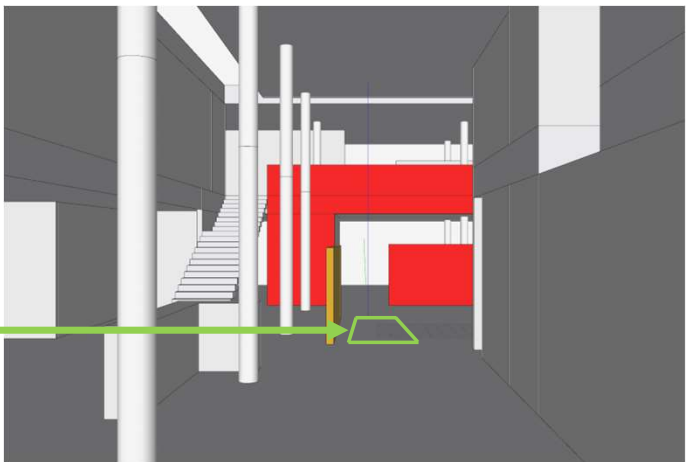
```
rpict -vp 0.37 -12.16 2.03 -vd 0.42 10.18 -1.36 -vu 0 0 1 -vh 45 -vv 45 -x 2400 -y 2400 -ab 2 -ad 512 -as 256 -ar 128 -aa 0.15 dlights.oct > output_image.hdr
```



課題 1

①点位置の作成

```
samp.inp  
0.18 -1.98 0.44 0 0 1  
0.79 -1.98 0.44 0 0 1  
1.40 -1.98 0.44 0 0 1  
0.18 -2.59 0.44 0 0 1  
0.79 -2.59 0.44 0 0 1  
1.40 -2.59 0.44 0 0 1  
0.18 -3.20 0.44 0 0 1  
0.79 -3.20 0.44 0 0 1  
1.40 -3.20 0.44 0 0 1  
0.18 -3.81 0.44 0 0 1  
0.79 -3.81 0.44 0 0 1  
1.40 -3.81 0.44 0 0 1
```



照度の結果

```
496.666471  
540.463213  
800.041093  
495.701375  
842.875317  
817.95483  
525.154404  
564.000995  
835.845244  
540.95496  
719.051715  
774.910275
```

昼光率の計算

	Indoor Illuminance (lux)	Daylight Factor (%)
0	496.666471	3.31110981
1	540.463213	3.60308809
2	800.041093	5.33360729
3	495.701375	3.30467583
4	842.875317	5.61916878
5	817.954830	5.45303220
6	525.154404	3.50102936
7	564.000995	3.76000663
8	835.845244	5.57230163
9	540.954960	3.60636640
10	719.051715	4.79367810
11	774.910275	5.16606850

python

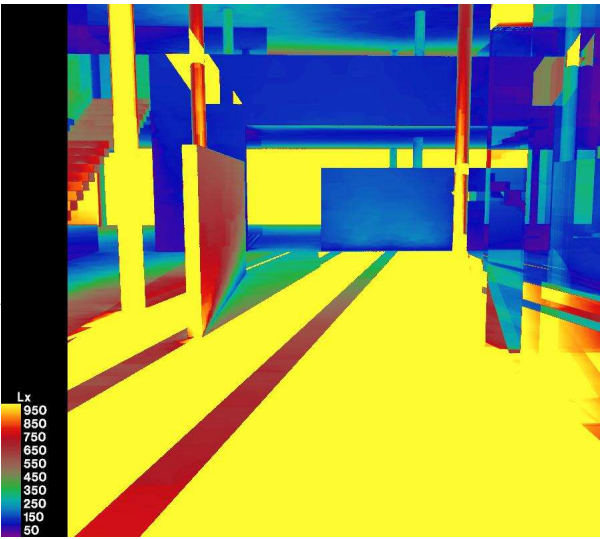
普通の日\_\_全天空照度15000[lx]

②照度の計算

```
rtrace -w -h -i+ -ab 2 -aa 0.3 -ad 512 -as 256 -ar 128 dlights.oct < samp.inp | rcalc -e  
"$1=($1*0.265+$2*0.670+$3*0.065)*179;" > 001dlights.txt
```

③最終画像の作成

```
rpict -vp 0.37 -12.16 2.03 -vd 0.42 10.18 -1.36 -vu 0 0 1 -vh 45 -vv 45 -x 2400 -y 2400 -ab 2 -  
ad 512 -as 256 -ar 128 -aa 0.15 dlights.oct|pfilt -l -x /3 -y /3>batch01.pic
```



課題 2

①冬至、夏至のsky.radファイル作成

冬至8時から16時まで

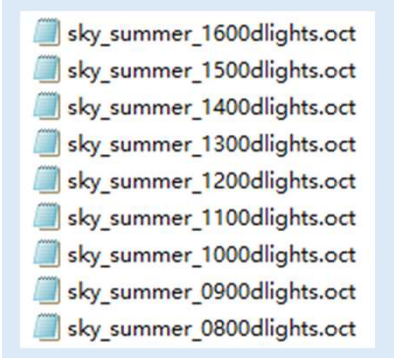
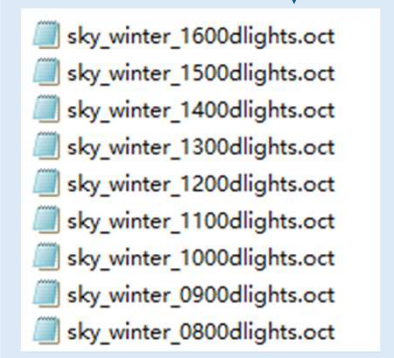
```
gensky 12 21 8 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_0800.rad  
gensky 12 21 9 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_0900.rad  
gensky 12 21 10 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_1000.rad  
gensky 12 21 11 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_1100.rad  
gensky 12 21 12 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_1200.rad  
gensky 12 21 13 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_1300.rad  
gensky 12 21 14 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_1400.rad  
gensky 12 21 15 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_1500.rad  
gensky 12 21 16 +s -a 35.6895 -o 139.6917 -m 135 > sky_winter_1600.rad
```

夏至8時から16時まで

```
gensky 6 21 8 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_0800.rad  
gensky 6 21 9 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_0900.rad  
gensky 6 21 10 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_1000.rad  
gensky 6 21 11 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_1100.rad  
gensky 6 21 12 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_1200.rad  
gensky 6 21 13 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_1300.rad  
gensky 6 21 14 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_1400.rad  
gensky 6 21 15 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_1500.rad  
gensky 6 21 16 +s -a 35.6895 -o 139.6917 -m 135 > sky_summer_1600.rad
```

②バイナリファイル作成

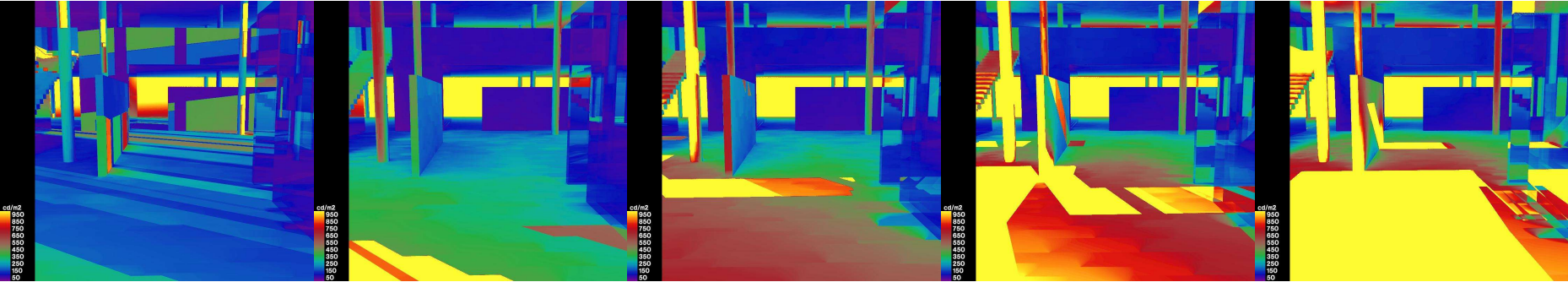
```
oconv materials.rad sky_XXXXXX_xx00.rad outside.rad scene.rad > sky_XXXXXX_xx00 dlights.oct
```



課題 2

③画像の作成

```
rpict -vp 0.37 -12.16 2.03 -vd 0.42 10.18 -1.36 -vu 0 0 1 -vh 45 -vv 45 -x 2400 -y 2400 -ab 2 -ad 512 -as 256 -ar 128 -aa 0.15 sky_winter_XX00dlights.oct|pfilt -1 -x /3 -y /3>batch_winter_XX00.pic
```



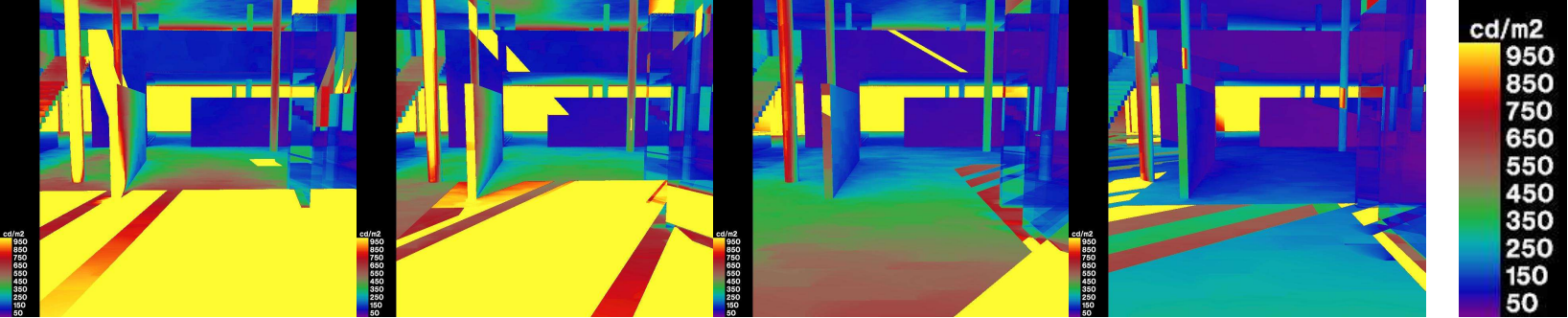
冬至8時

冬至9時

冬至10時

冬至11時

冬至12時



冬至13時

冬至14時

冬至15時

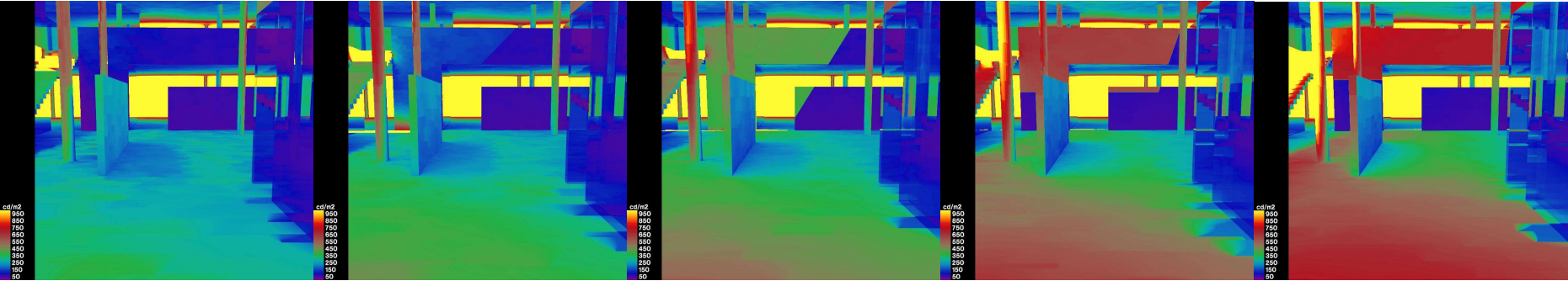
冬至16時



課題 2

③画像の作成

```
rpict -vp 0.37 -12.16 2.03 -vd 0.42 10.18 -1.36 -vu 0 0 1 -vh 45 -vv 45 -x 2400 -y 2400 -ab 2 -ad 512 -as 256 -ar 128 -aa 0.15 sky_summer_XX00dlights.oct|pfilt -1 -x /3 -y /3>batch_summer_XX00.pic
```



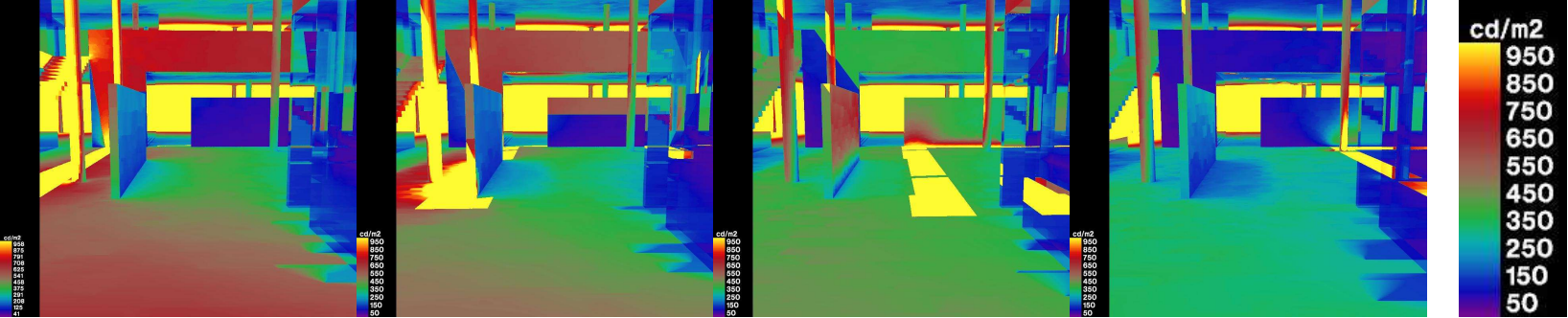
夏至8時

夏至9時

夏至10時

夏至11時

夏至12時



夏至13時

夏至14時

夏至15時

夏至16時

