Week 7_Francesca Aiuti

Sunday, 8 December 2019 21:24

Task 1

Provide a summary of the main concepts that we went through about solar radiation.

The *solar radiation* is the energy provided by the Sun that hits the Earth. It is part of a large group of energy called *electromagnetic radiation spectrum*. Solar radiation includes visible light, ultraviolet light, infrared, radio waves, X-rays and gamma rays.

The *average radiant temperature* is the temperature of the black envelope equivalent of a given surface, with whom it would exchange the same radial flux exchanged with other surfaces.

The *density of solar radiation* is measured with the constant Gsc (measurement of the flow density), with the measurement solar radiation per unit area. *Gsc = 1367 W/mq*.

The *absorption of solar radiation* is caused especially by the atmospheric components, ozone, water and carbon dioxide, which absorb the radiation incident, changing its energy spectrum. The ozone of the stratosphere absorbs almost all the ultraviolet components of solar radiation.

The *radiation* consists of electromagnetic waves that carry the energy. Electromagnetic radiation comes from the electrical charges acceleration. At the molecular level, this happens when objects heat up and their molecules vibrate, causing the acceleration of electrical charges.

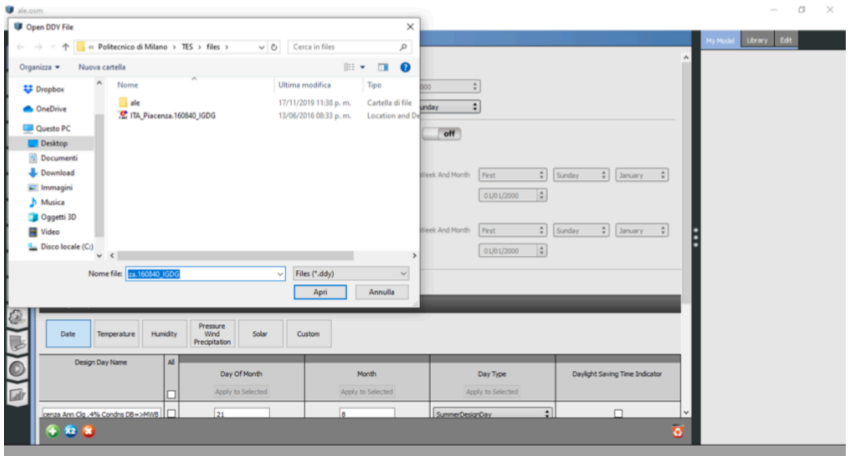
The Sun represents a huge thermal reactor (about 93 km away). When we talk about heat transfer by radiation, the energy is carried by electromagnetic waves, from a starting point to the space around it and does not involve contact with matter. Other forms of heat transfer cannot produce any of the energy that arrives on Earth through the vacuum of space.

Every object around us it is affected by continuous radiation, unless its temperature is at absolute zero.

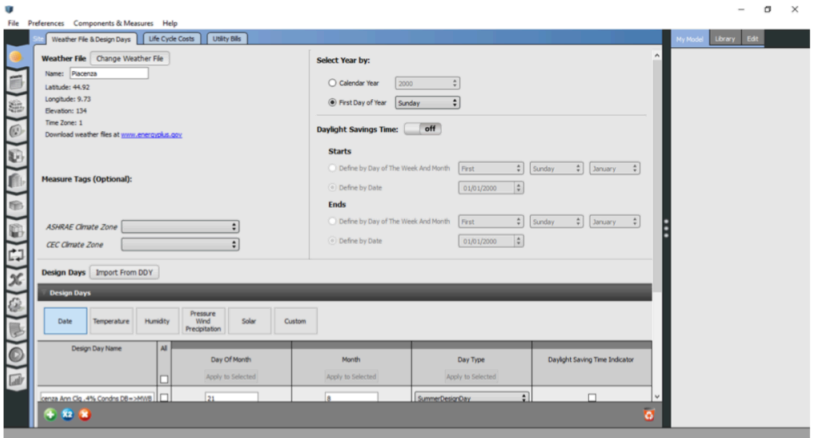
Task 2

Create a file with screenshots of the steps we went through the second lesson on OpenStudio and explain briefly the reason behind the use of each step.

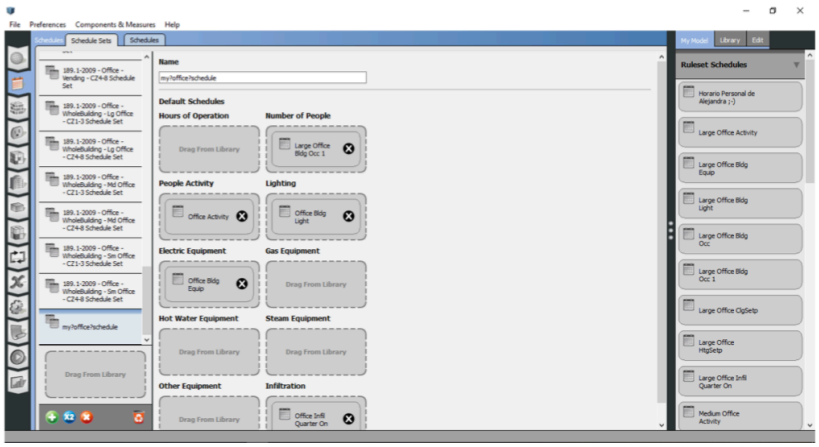
1) We started including the data of Piacenza in Openoffice



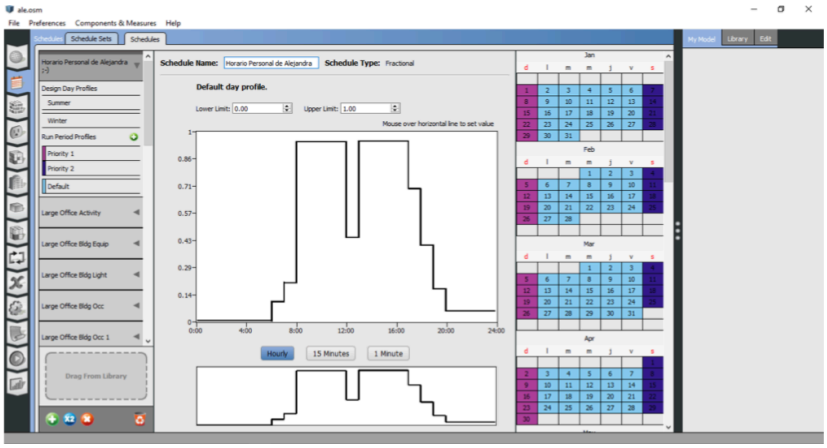
2) Then we got the right information



3) We selected the *construction* command to start to customize the building



4) Finally, we insert the wall in the building data and we come back to *schedule set* to enter all the information


ale.osm
File Preferences Components & Measures Help
Schedules
Schedule Sets
Schedules
My Model
Library
Edit
Horario Personal de Alejandra (c)
Design Day Profiles
Summer
Winter
Run Period Profiles
Priority 1
Priority 2
Default
Large Office Activity
Large Office Bldg Equip
Large Office Bldg Light
Large Office Bldg Occ
Large Office Bldg Occ 1
Drag From Library
Schedule Name: Horario Personal de Alejandra
Schedule Type: Fractional
Default day profile.
Lower Limit: 0.00
Upper Limit: 1.00
Mouse over horizontal line to set value
1
0.86
0.71
0.57
0.43
0.29
0.14
0
0:00
4:00
8:00
12:00
16:00
20:00
24:00
Hourly
15 Minutes
1 Minute
Jan
Feb
Mar
Apr