



Applied Remote Sensing Training (ARSET) Program

Satellite Remote Sensing for Urban Heat Islands

Homework Questions

Question 1

These wavelengths are most commonly used for retrieving land surface temperatures from remote sensing:

Answers: (bold correct)

- a. **Thermal Infrared**
- b. Microwave
- c. Ultraviolet

Question 2

Urban heat islands can form during the day or night, in small or large cities, and in any season.

Answers: (bold correct)

- a. **True**
- b. False

Question 3

Canopy layer heat island (CLHI) are measured by which platforms:

Answers: (bold correct)

- a. Mobile traverses

- b. Meteorological stations
- c. Radiosondes
- d. **Both A & B**

Question 4

These sensors have relatively higher spatial resolution useful for mapping urban land surface temperatures:

Answers: (bold correct)

- a. MODIS and VIIRS
- b. ABI and AVHRR
- c. **TIRS and ASTER**

Question 5

Land cover data are required for deriving land surface temperature from remote sensing.

Answers: (bold correct)

- a. **True**
- b. False

Question 6

All of the following are causes of Urban Heat Islands, except:

Answers: (bold correct)

- a. Anthropogenic heat
- b. Reduced vegetation in urban areas
- c. **Green roofs**
- d. Calm and clear weather conditions

Question 7

Since we have a long time series from multiple satellites/instruments for monitoring Urban Heat Islands, we do not need any in situ measurements.

Answers: (bold correct)

- a. True
- b. False**

Question 8

GOES ABI land surface temperature products are available globally at 10 km resolution.

Answers: (bold correct)

- a. True
- b. False**

Question 9

Which of the following are problems related to Urban Heat Islands?

Answers: (bold correct)

- a. Increased risk of heat-related mortality and morbidity
- b. Increased energy consumption
- c. Degraded water quality
- d. All of the above**

Question 10

These satellites and sensors have daily or twice daily observations:

Answers: (bold correct)

- a. Aqua MODIS
- b. JPSS VIIRS
- c. Landsat 8 OLI
- d. Both A & B**

Question 11

One of the major limitations of remote sensing observations mentioned in the webinar for getting land surface temperatures is:

Answers: (bold correct)

- a. High density urban population
- b. Presence of clouds**
- c. Climate change

Question 12

Satellites are used to derive which type of temperature estimates?

Answers: (bold correct)

- a. Air temperature
- b. Land surface temperature**
- c. In situ temperature