



Applied Remote Sensing Training (ARSET) Program

SAR for Disaster Applications

Homework Questions

Question 1

Which wavelength is better for detecting inundated vegetation under a dense canopy?

Answers: (bold correct)

- a. Ku-band
- b. X-band
- c. C-band
- d. **L-band**

Question 2

A C-band wavelength is approximately how long?

Answers: (bold correct)

- a. 2 cm
- b. **5 cm**
- c. 12 cm
- d. 24 cm

Question 3

Open water and inundated vegetation are characterized by the following backscattering mechanisms:

Answers: (bold correct)

- a. Specular scattering and volume scattering
- b. Double bounce and volume scattering
- c. Specular scattering and double bounce**
- d. Volume scattering and rough surface scattering

Question 4

Which polarization is best for detecting inundation under dense vegetation?

Answers: (bold correct)

- a. VV
- b. HV
- c. HH**
- d. VH

Question 5

Which polarization is best for detecting open water?

Answers: (bold correct)

- a. VV
- b. HV**
- c. HH
- d. All of the above

Question 6

Wind ripples on open water will:

Answers: (bold correct)

- a. Decrease backscatter
- b. Increase backscatter**
- c. Not cause a change to backscatter
- d. All of the above

Question 7

Urban areas are often confused with:

Answers: (bold correct)

- a. Deforested areas
- b. Open water
- c. Forests
- d. Flooded vegetation**

Question 8

Google Earth Engine Sentinel-1 images are Ground Range Detected (GRD) amplitude in log scale (dB)/

Answers: (bold correct)

- a. True**
- b. False

Question 9

Phase provides information on topography and deformation.

Answers: (bold correct)

- a. True**
- b. False

Question 10

Differential Interferometry (DInSAR) observes a target at two different times and from the same/very similar positions. This technique is used for generating:

Answers: (bold correct)

- a. Displacement maps**
- b. Topography maps
- c. All of the above

Question 11

Interferometric SAR (InSAR) is used to generate:

Answers: (bold correct)

- a. Displacement maps
- b. Topography maps**
- c. All of the above

Question 12

When calculating displacement, the baseline should ideally be:

Answers: (bold correct)

- a. As large as possible
- b. Zero or as small as possible**
- c. No more than 5 km
- d. None of the above

Question 13

The accuracy of topographic maps are on the order of:

Answers: (bold correct)

- a. Nanometers
- b. Centimeters
- c. Meters**
- d. Kilometers

Question 14

The accuracy of displacement maps are on the order of:

Answers: (bold correct)

- a. Nanometers

- b. **Centimeters**
- c. Meters
- d. Kilometers

Question 15

The sensitivity of InSAR topographic measurements depend directly on:

Answers: (bold correct)

- a. The wavelength
- b. **The perpendicular baseline between the two satellites**
- c. Both A & B

Question 16

The sensitivity of DInSAR deformation measurements depends directly on:

Answers: (bold correct)

- a. **The wavelength**
- b. The perpendicular baseline between the two satellites
- c. Both A & B

Question 17

Other factors that affect the interferometric phase are:

Answers: (bold correct)

- a. Not knowing the exact position of the satellite
- b. Atmospheric effects
- c. Noise
- d. **All of the above**

Question 18

Coherence loss occurs when the target has not changed at all between acquisitions.

Answers: (bold correct)

- a. True
- b. False**

Question 19

When focusing on landslides you should use the highest resolution DEM available.

Answers: (bold correct)

- a. True**
- b. False

Question 20

DInSAR is only sensitive to the line of sight of the radar and movements in other directions might not be measured.

Answers: (bold correct)

- a. True**
- b. False