

1. **DESCRIPTION:** Participants will use remote sensing imagery, science and mathematical process skills to complete tasks related to an understanding of the causes and consequences of human interaction with forest biomes.

A TEAM OF UP TO: 2

APPROXIMATE TIME: 50 minutes

2. **EVENT PARAMETERS:**

- a. Each team may bring five 8.5" x 11" two-sided sheets of paper containing any information from any source.
- b. Each participant may bring any kind of (non-graphing) calculator, but no other resources.

3. **THE COMPETITION:** The event will be organized as follows:

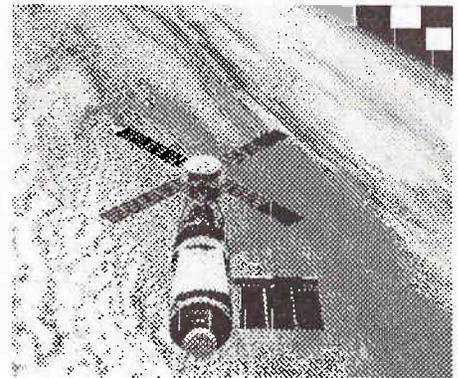
- a. **The causes, consequences, and evidence for human interaction with forest biomes.**
- b. Students will analyze and interpret remote sensing images.
- c. Students will use mathematical computations to analyze or express quantitative data.
- d. **Students should understand concepts and terms related to forest biomes including: radiative balance of the atmosphere, sources of greenhouse gasses, and changes in surface temperature, carbon cycles, and plant growth.**
- e. **Students should be familiar with the principles of satellite imagery, including orbital missions and sensor systems related to climate change, land use monitoring (particularly radiometric measurements of temperatures, greenhouse gasses, land color and principles of digital image processing and the electromagnetic spectrum).**
- f. **Students may be asked to interpret digital data presented numerically in a grid.**

4. **SAMPLE ACTIVITIES:**

- a. **Compare the area of insect infestation in a given location with recorded amounts in previous years.**
- b. **Evaluate area damaged by deforestation or forest fires.**

5. **SCORING:** Teams with the highest number of correct answers will be the winners. Selected task will be used as a tiebreaker.

RESOURCES: Science Olympiad **Remote Sensing CD.**



NATIONAL SCIENCE EDUCATION STANDARDS Physical Science; Interactions of energy and matter; Science in Personal/Social Perspectives: Science and technology in global challenges.