Arecibo vs. FAST:
Who's Winning Now?

The Chinese FAST telescope is now the world leader in single dish radio astronomy. However, FAST has no radars, and the capabilities of the legacy Arecibo are so far unmatched in the crucial radar area, the key to planetary defense against near-earth asteroids, studies of extreme space weather and hurricanes, and other national security priorities.

American radio astronomers must now stand in line behind scores of Chinese scientists who are understandably eager to exploit their new FAST instrument. Only a few slots are available to foreigners, and they must share any data they collect with China, which has serious ramifications for U.S. science leadership.

In the absence of a new Arecibo, FAST will make the new discoveries that once made Arecibo the world leader in radio astronomy and radar science. Such as:

- Confirmation of Einstein's theory of relativity, which led to the Nobel prize.
- The discovery of the universe's most accurate clocks, which have multiple practical purposes, including defense, and commerce.
- Exploration of the structure and evolution of the universe.
- Space weather investigation and prediction.

A new Arecibo will be designed to far surpass FAST and all other competing instruments. It will:

- Reestablish US leadership in the radio and radar sciences.
- Avoid the engineering and manufacturing flaws which caused the collapse, after almost 60 years of service, of the legacy instrument platform.
- Provide capabilities that only a single dish instrument can best offer, namely flexible adaptation to future needs and innovative projects.
- Take advantage of the modern capabilities of radar instruments, so that the multiple Observatory radars work together even more effectively.
- Complement the existing Arecibo instruments that are still up and running and producing good science, which is especially crucial to atmospheric and space weather research.

A new Arecibo will continue the proud tradition of a telescope that has led the world, supported and staffed by scientists and citizens worldwide, and not least by the people of Puerto Rico. Scientists across the U.S. made discoveries there, students were inspired there, and the Arecibo Observatory was unsurpassed for nearly sixty years. A healthy and operating Arecibo Observatory will allow Puerto Rican students to work side by side with scientists and be inspired in their careers. Working with teachers beside a ruin in no way compares to working with researchers beside a world-class telescope doing real work.

The U.S. once led the world in high-sensitivity radio and radar science.

With a new Arecibo, we will again.

Arecibo Science Advocacy Partnership (ASAP) (http://areciboscience.org)
Contact: secretary@areciboscience.org