

LEGACY DISCOVERIES FROM THE ARECIBO OBSERVATORY

1992 Arecibo discovered the first ever exoplanet.

- In subsequent observations, an entire planetary system was found around the pulsar PSR 1257+12.

1992 Arecibo discovered ice at the North and South poles of Mercury.

- The ice persists in shadowed craters despite the high temperatures, 800°F, at the surface; this discovery was confirmed in 2014 by NASA's MESSENGER spacecraft.

1982 Arecibo discovered the first OH Megamaser in Arp 220, the nearest ultraluminous IR galaxy.

- Arp 220 is a merger undergoing a burst of star formation; the population inversion is produced by IR radiation from dust.

1982 Arecibo discovered the first millisecond pulsar, PSR 1937+21.

- This discovery of a second class of pulsar led to the suggestion that pulsars can spin-up by accreting mass from a companion.

1981 Arecibo produced the first radar maps of the surface of Venus.

- Optical images show only the top of the thick cloud layer.

1974 Arecibo discovered the first ever binary pulsar. Changes in periastron confirmed the predictions of General Relativity.

- The 1993 Nobel Prize in Physics was awarded to Hulse and Taylor for this discovery.

1968 Arecibo measured the 33-ms period of the Crab pulsar.

- Only sporadic radio pulses from the Crab nebula supernova remnant were know before Arecibo.

1967 Arecibo discovered that the rotation rate of Mercury is 59 days, not the previously estimated value of 88 days.

- The rotation is not tidally locked, but rather, the rate is an orbital resonance with 2 orbits for every 3 rotations.