

= WASP @-@ 15b =

WASP @-@ 15b is an extrasolar planet discovered in 2008 by the SuperWASP collaboration , which seeks to discover exoplanets that transit their host stars . The planet orbits its host star at a distance of 0 @. @ 05 AU every four days . The mass of this planet is about one half that of Jupiter , but its radius is nearly 50 % larger than Jupiter 's , making the density of this planet only one quarter that of water ; it is thought that some other form of heating must explain its extremely low density . WASP @-@ 15b 's discovery was published on April 29 , 2009 .

= = Discovery = =

WASP @-@ 15 was first observed by the WASP @-@ South branch of the SuperWASP project , which operates from the South African Astronomical Observatory , between May 4 , 2006 and July 17 , 2006 . It was later observed by both WASP @-@ South and SuperWASP @-@ North , which is based in the Canary Islands , from January 31 , 2007 to July 17 , 2007 and from January 31 , 2008 to May 29 , 2008 . Further analysis taken from 24 @, @ 943 collected data points revealed eleven full or partial transits .

Follow @-@ up observations were conducted by a European and American science team at the 1 @. @ 2 m Leonhard Euler Telescope at La Silla Observatory in Chile , which further raised the possibility of the existence of a planet in WASP @-@ 15 's orbit ; use of the CORALIE spectrograph on the Euler Telescope between March 6 , 2008 and July 17 , 2008 revealed that the variations in radial velocity measurements were not because of an eclipsing binary star system .

CORALIE and the High Resolution Echelle Spectrometer (HIRES) revealed the spectrum of WASP @-@ 15 , which was used to derive the star 's characteristics . The science team studying WASP @-@ 15 found that , after running best @-@ fit models , WASP @-@ 15 's radial velocity and transit shifts were most likely due to the existence of a planet .

WASP @-@ 15 's planet , WASP @-@ 15b , had one of the lowest densities known amongst extrasolar planets when it was discovered . Its discovery paper was published by the American Astronomical Society on April 29 , 2009 in the Astronomical Journal .

= = Host star = =

WASP @-@ 15 is an F @-@ type star located in the Hydra constellation . It is located approximately 308 parsecs (1 @, @ 004 light years) from Earth and has an apparent magnitude of 10 @. @ 9 , making it invisible to the unaided eye . The star is 1 @. @ 18 times more massive than the Sun , and has a radius that is 1 @. @ 477 times larger than that of the Sun , making it more diffuse . WASP @-@ 15 has an effective temperature of 6300 K , and is thus hotter than the Sun , although at 3 @. @ 9 billion years , it is also younger . WASP @-@ 15 has a metallicity of [Fe / H] of -0.17 , which means that it has 68 % of the iron found in the Sun .

= = Characteristics = =

WASP @-@ 15b has a mass of 0 @. @ 542 times Jupiter 's mass and a radius that is 1 @. @ 428 times Jupiter 's radius . Due in part to its proximity to its host star , a distance of 0 @. @ 0499 AU (7 @, @ 500 @, @ 000 km) , WASP @-@ 15b is greatly inflated , with a density of 0 @. @ 247 g / cm³ . Another factor , such as an internal heat source , is suspected to add to this extremely high radius and extremely low density . WASP @-@ 15b orbits its host star every 3 @. @ 7520656 days . It also has an orbital inclination of 85.5° , making it almost edge @-@ on as seen from the Earth 's perspective .