

= WASP @-@ 15 =

WASP @-@ 15 is a magnitude 11 star located about 1000 light @-@ years away in the constellation Hydra . The star , which is more massive , larger , hotter , and more luminous than the Sun , is also less metal @-@ rich than the Sun . WASP @-@ 15 has one known planet in its orbit , WASP @-@ 15b ; the planet is a Hot Jupiter with an anomalously high radius , a phenomenon which may be explained by the presence of an internal heat source . The star was first observed by the SuperWASP program in 2006 ; future measurements in 2007 and 2008 , as well as follow @-@ up observations and analysis , eventually led to the discovery of WASP @-@ 15b using the transit method and Doppler spectroscopy .

= = Observational history = =

WASP @-@ 15 was first observed by the South African Astronomical Observatory , which coordinates the planet @-@ searching SuperWASP program in the Southern Hemisphere (WASP @-@ South) , and was catalogued by its brightness and its coordinates in the sky . This information was captured first with one camera field between May 4 , 2006 and July 17 , 2006 , and later again using two overlapping camera fields between January 31 , 2007 to July 7 , 2007 and from January 31 , 2008 to May 29 , 2008 .

Data processing led to the acquisition of 24 @,@ 943 data points that suggested that some body transited , or crossed in front of (and briefly dimmed) , WASP @-@ 15 every 3 @.@ 7520 days . Approximately eleven transits , full and partial , were observed . Use of the EulerCAM photometer at the La Silla Observatory 's 1 @.@ 2 m Leonhard Euler Telescope on March 29 , 2008 provided further evidence for an exoplanet by better defining the transit 's curve . Later , the CORALIE spectrograph (also on the Euler telescope) between March 6 , 2008 and July 17 , 2008 used Doppler spectroscopy to collect 21 radial velocity measurements . Analysis confirmed the presence of a planet that was later designated WASP @-@ 15b .

= = Characteristics = =

WASP @-@ 15 is an F @-@ type star with a mass that is 1 @.@ 18 times larger than the Sun , and a radius that is 1 @.@ 477 bigger . It is , thus , larger , more massive , and more diffuse than the Sun . The star has an effective temperature of 6300 K , making it also hotter than the Sun . With a metallicity of [Fe / H] = -0.17 , WASP @-@ 15 has 0 @.@ 676 times the amount of iron than the Sun , and has consistently lower levels of other metals , including sodium , magnesium , silicon , calcium , and scandium . In addition , WASP @-@ 15 is most likely younger than the Sun , as it has an estimated age of 3 @.@ 9 billion years . WASP @-@ 15 is approximately 3 @.@ 09 times more luminous than the Sun .

WASP @-@ 15 is located at a distance of 308 parsecs (1 @,@ 004 light years) , and it has an estimated apparent magnitude of 10 @.@ 9 . It is , thus , not visible from Earth with the unaided eye .

= = Planetary system = =

WASP @-@ 15 is host to the planet WASP @-@ 15b . The planet , which is a Hot Jupiter , orbits its host star at a distance of 0 @.@ 0499 AU every 3 @.@ 7520656 days . WASP @-@ 15b was noted by its discoverers because of its anomalously high radius , which is 1 @.@ 428 times that of Jupiter , compared to its mass , which is 0 @.@ 542 times the size of Jupiter . WASP @-@ 15b 's large radius cannot be explained solely by its proximity to its star , suggesting that some form of tidal heating or other internal heating mechanism is also involved .