

= WASP @-@ 44b =

WASP @-@ 44b is a closely orbiting Jupiter @-@ sized planet found in the orbit of the sunlike star WASP @-@ 44 by the SuperWASP program , which searches for transiting planets that cross in front of their host stars as seen from Earth . After follow @-@ up observations using radial velocity , the planet was confirmed . Use of another telescope at the same observatory detected WASP @-@ 44 transiting its star . The planet completes an orbit around its star every two and a half days , and orbits at roughly 0 @. @ 03 AU from its host star . WASP @-@ 44b 's discovery was reported by the Royal Astronomical Society in May 2011 .

= = Discovery = =

Using the WASP @-@ South station at the South African Astronomical Observatory , the SuperWASP project searched the night sky for potential planets that transited , or crossed in front of , their host stars at a roughly periodic rate . WASP @-@ 44 was among the candidates identified as a possible host to a transit event . WASP @-@ 44 's reclassification as a potential planetary host came about after WASP @-@ South scanned the Cetus constellation between July and November 2009 . In combination with later observations using both WASP @-@ South and the SuperWASP @-@ North in the Canary Islands , over 15 @, @ 755 photometric measurements were collected . A later set of observations between August and November 2010 produced a 6 @, @ 000 point photometric data set , but the light curve was prepared late and was not considered in the discovery paper . The star was observed at the same time as stars WASP @-@ 45 and WASP @-@ 46 .

In 2010 , the European team of astronomers used the CORALIE spectrograph on the 1.2m Leonhard Euler Telescope at Chile 's La Silla Observatory . The same radial velocity measurements detected by SuperWASP were detected . The planet WASP @-@ 44b was confirmed after analysis of the results ruled out spectroscopic binary stars , leaving a transiting planet as the most likely cause of the radial velocity variations .

The Euler telescope was used to observe WASP @-@ 44b as it transited its host star . For 4 @. @ 2 hours on September 14 , 2010 , Euler observed WASP @-@ 44 in search of a slight dimming in brightness until a more precise light curve could be found . Accounting for all data yet collected , analysis yielded the planet 's characteristics .

The discovery of WASP @-@ 44b , along with those of WASP @-@ 45b and WASP @-@ 46b , were reported on May 16 , 2011 by the Royal Astronomical Society . The scientists who worked on the paper discussed the role of orbital eccentricity , or how elliptical an orbit is , and how poorly constrained it tends to be amongst Hot Jupiters , where a circular orbit is assumed . They used the three newly discovered planets as studies into the creation of a non @-@ eccentric , circular model for a planet 's orbit ( the most likely solution ) or an eccentric , elliptical solution for a planet 's orbit ( the solution that , according to the discovery team , required less of an assumption ) .

= = Host star = =

WASP @-@ 44 is a sunlike G @-@ type star in the Cetus constellation . WASP @-@ 44 has a mass of 0 @. @ 951 solar masses and a radius of 0 @. @ 927 solar radii , which means that WASP @-@ 44 is 95 % the mass of and 92 % the size of the Sun . With an effective temperature of 5410 K , WASP @-@ 44 is cooler than the Sun , although it is richer in iron , with a measured metallicity of [ Fe / H ] = 0 @. @ 06 ( 1 @. @ 15 times the amount of iron found in the Sun ) . The star is an estimated 900 million years old , although this age is uncertain , as error bars are large . Based on its spectrum , WASP @-@ 44 is not active in its chromosphere ( outer layer ) . The star was also not found to demonstrate a high rate of rotation .

With an apparent magnitude of 12 @. @ 9 , WASP @-@ 44 cannot be seen with the unaided eye from Earth .

= = Characteristics = =

WASP @-@ 44b is a Hot Jupiter with a mass of 0 @.@ 889 times Jupiter 's mass and a radius of 1 @.@ 002 times that of Jupiter . Although less massive than Jupiter , the planet is bloated to a greater size because its proximity to its host star heats it , a common effect in such closely orbiting gas giants . WASP @-@ 44b orbits at a mean distance of 0 @.@ 03473 AU , which is about 3 % of the distance between the Earth and Sun . An orbit is completed every 2 @.@ 4238039 days ( 58 @.@ 171 hours ) .

WASP @-@ 44b has an orbital inclination of  $86.02^{\circ}$  , which is almost edge @-@ on as seen from Earth .