



Space Research Journal

ISSN 1819-3382



Academic
Journals Inc.

www.academicjournals.com

New Hot Jupiter-Like Exoplanet Discovered

A Qatar astronomer teamed with scientists at the Harvard-Smithsonian Center for Astrophysics (CfA) and other institutions to discover a new alien world. This "hot Jupiter," now named Qatar-1b, adds to the growing list of alien planets orbiting distant stars.

The Qatar exoplanet survey hunts for stars that "wink," dimming slightly every time an orbiting planet creates a "mini-eclipse" by crossing in front of the star as seen from Earth. Transit searches like this must sift through thousands of stars to find the small fraction with detectable planets. The complex observations and analysis create perfect opportunities for teamwork.

To find the new world, Qatar's wide-angle cameras (located in New Mexico) took images of the sky every clear night beginning in early 2010. The photographs then were transmitted to the UK for analysis by collaborating astronomers at St. Andrews and Leicester Universities and Qatar. That analysis narrowed the field to a few hundred candidate stars.

The Harvard-Smithsonian team, with Dr. Al Subai, followed up on the most promising candidates, making spectroscopic observations with the 60-inch-diameter telescope at the Smithsonian's Whipple Observatory in Arizona. Such observations can weed out binary-star systems with grazing

eclipses, which mimic planetary transits. They also measured the stars' dimming more accurately with Whipple's 48-inch telescope.

The resulting data confirmed the existence of a planet now called Qatar-1b, orbiting an orange Type K star 550 light-years away. Qatar-1b is a gas giant 20 percent larger than Jupiter in diameter and 10 percent more massive. It belongs to the "hot Jupiter" family because it orbits 2.2 million miles from its star -- only six stellar radii away. The planet roasts at a temperature of around 2,000 degrees Fahrenheit.

Qatar-1b circles its star once every 1.4 days, meaning that its "year" is just 34 hours long. It's expected to be tidally locked with the star, so one side of the planet always faces the star. As a result, the planet spins on its axis once every 34 hours -- three times slower than Jupiter, which rotates once in 10 hours.

Story Source: The above story is reprinted from materials provided by Harvard-Smithsonian Center for Astrophysics.