New Moon	First Quarter	Full Moon	Last Quarter
3rd @ 12:49	10th @ 05:58	17th @ 15:16	25th @ 19:30

Note: Times are in Chailey local time – GMT+0

Have you ever considered how fast you are moving? The answer may surprise you! Everything in the Universe is moving, from our planet Earth rotating and orbiting our Sun to the expansion of the Universe itself.

The first thing to realise is that speed is a measure of travel relative to another object. If you are travelling in a car at 60 miles per hour, you are measuring your speed relative to the surface of the Earth itself. Even when you are collapsed in your armchair at the end of the day, you are still moving.

At the equator, the Earth is moving at almost 1,000 miles an hour. Here in Chailey, we are a bit higher up on the planet, so are moving a bit slower (but not by much!)

The planet Earth also orbits our Sun once a year. To do this, it needs to get a move on – the average speed is about 67,000 miles an hour. As the planet gets closer to the Sun, we speed up a little, when we are further away, we slow down a little.

Our own Sun is also on the move as well. Astronomers estimate that the Sun (and our entire solar-system) is travelling at about 43,000 miles per hour roughly in the direction of the star Vega. This is just the 'local' movement relative to the other stars in our neighbourhood.

The Milky Way Galaxy in which we live is constantly rotating as well. Our Sun takes about 225 million years to make one trip around the disk of the Milky Way. That means that we are moving at an astounding 483,000 miles per hour around the centre of the Galaxy!

To figure out how quickly we are moving relative to the Universe itself, Astronomers have measured the speed that our Earth(and therefore our Sun and Galaxy) is moving through the Universe.

To get this measurement, scientists used an effect called the Doppler Shift to determine how fast we are moving. The Doppler Shift is simply how bunched up light or sound becomes to the observer when another object is moving. The simplest demonstration of this is the change in pitch (frequency) of a police siren as it comes towards you, and travels away from you. Scientists can calculate the exact speed of the object relative to the observer based upon the frequency change itself.

They compared the Doppler shift of the remnants of the Big Bang called the Cosmic Microwave Background Radiation (CBR) with our own Earth. The CBR is the heat left over from the Big Bang itself. The speed they calculated is astonishing! It turns out that we are moving relative to the Big Bang at a speed of 1.3 million miles per hour. A fair clip, I think you will agree!

So, next time you are relaxing at home, just remember how fast you are really moving!

Don't forget that you can learn more about South Common Observatory, see the pictures I have taken from Chailey, or order my Astronomical Greetings cards from my website: http://nebul.ae.

Richie Jarvis

richie@nebul.ae http://nebul.ae
http://twitter.com/richiedeepsky http://www.facebook.com/richiedeepsky