

Our Sky in March 2012

Venus and Jupiter continue to dominate the western sky after sunset, but Jupiter is rapidly leaving the scene so make the most of him this month. He is replaced by Mars and Saturn, both rising in the East, and they will be the planets to watch for during the Spring and Summer.

Our Solar system does not end with Pluto; indeed, Pluto is one of the thousands of Kuiper Belt objects that inhabit these distant parts. These dwarf planets have only been recently discovered with the new telescopes which are capable of detecting these very faint and distant objects.

The Kuiper belt, rhyming with "viper", is a region of the Solar System beyond the planets extending from the orbit of Neptune (at 30 AU) to approximately 50 AU from the Sun. (One AU is the distance of the Earth from the Sun, about 92 million miles) It is similar to the asteroid belt, although it is far larger—20 times as wide and 20 to 200 times as massive. Like the asteroid belt, it consists mainly of small bodies, or remnants from the Solar System's formation. While the asteroid belt is composed primarily of rock, ices, and metal, the Kuiper objects are composed largely of frozen volatiles (termed "ices"), such as methane, ammonia and water. The classical (low-eccentricity) belt is home to at least three dwarf planets: Pluto, Haumea, and Makemake. Some of the Solar System's moons, such as Neptune's Triton and Saturn's Phoebe, are also believed to have originated in the region. Since the belt was discovered in 1992, the number of known Kuiper belt objects (KBOs) has increased to over a thousand, and more than 70,000 KBOs over 100 km (62 mi) in diameter are believed to exist. The Kuiper belt was initially believed to be the main repository for periodic comets, those with orbits lasting less than 200 years. However, studies since the mid-1990s have shown that the classical belt is dynamically stable, and that comets' true place of origin is the scattered disc, a dynamically active region created by the outward motion of Neptune 4.5 billion years ago; scattered disc objects such as Eris have extremely eccentric orbits that take them as far as 100 AU from the Sun.

We have not yet finished with the Solar System, and next month we travel out to the Oort cloud where comets possibly reside. From there, we travel into the far reaches of our Galaxy, and then beyond – who knows where we will end our journey?

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