

Star Cluster: A celebration of Christmas in the sky

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Carlos Rotellar Photo

Christmas is upon us and the sky celebrates this holiday with the largest Christmas tree in the universe: The Christmas Tree Star Cluster.

The Christmas Tree Star Cluster is an open star cluster located in the constellation Monoceros 2,300 light years away from Earth and covers an area of about 30 light years.

In the image we can see the red triangular shape of galactic gas and the very young stars that gives its name to the cluster. At the top of the image we see a dark area known as the Cone Nebula which lies at a distance of about 2,700 light years from Earth. Below the tip of the Cone Nebula is the star HD 47887

which marks the apex of the tree, while at the bottom we can see the bright star S Monocerotis which marks the trunk of the tree.



The Christmas Tree Cluster contains about 600 stars; they are between 1 to 4 million years old and they were formed from the surrounding molecular cloud. It was discovered by William Herschel on 1784, but was not until 1785 that he noticed the surrounding faint nebulosity.

The Cone Nebula is about seven light years across and is named after its cone shape. It is both a dark and emission nebula where stars are formed. The dark area contains thick clouds of dust that block the light behind it.

On the bottom of the image and to the left of the star S Monocerotis, we can see the Fox Fur Nebula (Sh2- 273), named for its resemblance to the head of a red fox stole. It lies at distance of 2,700 light years from Earth and it is a star forming region. The red glow is due to the hydrogen molecules been stimulated by the radiation from the young stars in the cluster.

The radial velocity of a space object is the speed in which an object moves towards (negative value) or away (positive value) from the Sun. The radial velocity of the Christmas Tree Cluster is +13.6 miles/second.

Happy Holidays!

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