

Comet 2014 UN271 the largest ever observed

February 8 2022, by Bob Yirka

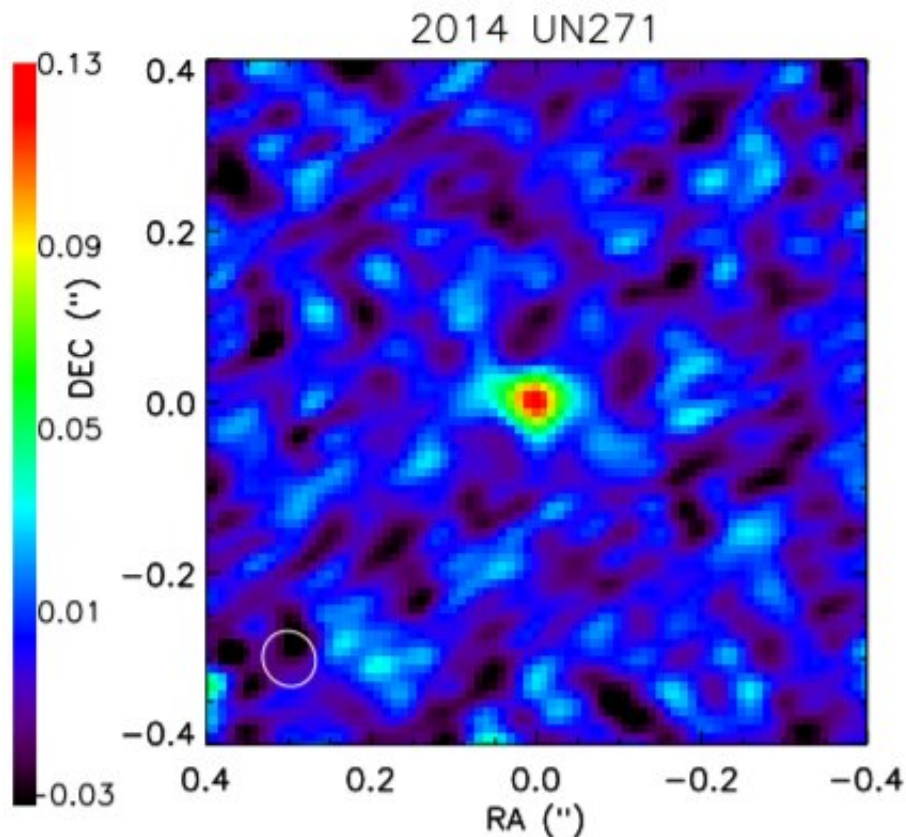


Fig. 1. Recentered 233 GHz total image of 2014 UN271 merging data from the two SB and the four spectral windows. The synthesized beam, shown in white, is $0.067'' \times 0.062''$. The scale of the color bar is in mJy. Credit:

<https://arxiv.org/pdf/2201.13188.pdf>

A team of researchers with the Paris observatory and Instituto de Astrofísica de Andalucía-CSIC, has confirmed that comet 2014 UN271 is the largest comet ever observed. They published a paper describing

their findings on the arXiv preprint server, and it has been accepted for publication in *Astronomy and Astrophysics Letters*.

Comet 2014 UN271, also known as Bernardinelli-Bernstein, was first sighted in 2014; hence, the initial part of its name. Researchers determined at the time that it had originated in the Oort Cloud. It was observed during the search for solar system objects during the Dark Energy Survey. Back then, the [comet](#) was still as far away as Neptune, and astronomers had no idea of its size. Seven years later, as it drew closer, it became clear that it was bigger than most comets. Researchers at the time suggested it was likely 100 to 370 kilometers across.

In this new effort, using data from the Atacama Large Millimeter Array, the team studied the [wavelengths of light](#) bouncing off the comet to learn more about its size (most other measurements of comet size have involved measuring how much of the sky they cover). More specifically, the researchers focused on those wavelengths of its microwave radiation that were not represented by the dust given off by the comet, noting that the comparative brightness of the wavelengths reflected from the comet were fairly typical. Their calculations showed that for the comet to be reflecting so much light, it had to be approximately 137 kilometers across, nearly in the minor planet category. The previous record holder was Hale-Bopp, which was measured at approximately 74 kilometers across.

The researchers also point out that their measurement of Comet 2014 UN271 was the most distant measurement of a comet's reflectivity (albedo) ever performed. They note that measuring a comet at such a distance will allow researchers to measure its size in detail as it loses ice on approach to the sun. They expect it to be just half its current size once it begins its return trip.

More information: E. Lellouch et al, Size and albedo of the largest

detected Oort-cloud object: comet C/2014 UN 271 (Bernardinelli-Bernstein). arXiv:2201.13188v1 [astro-ph.EP],
arxiv.org/abs/2201.13188

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