

VISTA finds new globular star clusters

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This image from VISTA is a tiny part of the VISTA Variables in the Via Lactea (VVV) survey that is systematically studying the central parts of the Milky Way in infrared light. On the right lies the globular star cluster UKS 1 and on the left lies a much less conspicuous new discovery, VVV CL001 -- a previously unknown globular, one of just 160 known globular clusters in the Milky Way at the time of writing. The new globular appears as a faint grouping of stars about 25 percent of the width of the image from the left edge, and about 60 percent of the way from bottom to top. Credit: ESO/D. Minniti/VVV Team

(PhysOrg.com) -- Two newly discovered globular clusters have been added to the total of just 158 known globular clusters in our Milky Way. They were found in new images from ESO's VISTA survey telescope as part of the Via Lactea (VVV) survey. This survey has also turned up the first star cluster that is far beyond the centre of the Milky Way and whose light has had to travel right through the dust and gas in the heart

of our galaxy to get to us.

The dazzling globular [cluster](#) called UKS 1 dominates the right-hand side of the first of the new infrared images from ESO's VISTA survey telescope at the Paranal Observatory in Chile. But if you can drag your gaze away, there is a surprise lurking in this very rich star field — a fainter globular cluster that was discovered in the data from one of VISTA's surveys. You will have to look closely to see the other star cluster, which is called VVV CL001: it is a small collection of stars in the left half of the image.

But VVV CL001 is just the first of VISTA's globular discoveries. The same team has found a second object, dubbed VVV CL002, which appears in image b. This small and faint grouping may also be the globular cluster that is the closest known to the centre of the Milky Way. The discovery of a new globular cluster in our Milky Way is very rare. The last one was discovered in 2010, and only 158 [globular clusters](#) were known in our galaxy before the new discoveries.



This image from VISTA is a tiny part of the VISTA Variables in the Via Lactea (VVV) survey that is systematically studying the central parts of the Milky Way in infrared light. In the centre lies the faint newly found globular star cluster, VVV CL002. This previously unknown globular, which appears as an inconspicuous concentration of faint stars near the centre of the picture, lies close to the centre of the Milky Way. Credit: ESO/D. Minniti/VVV Team

These new clusters are early discoveries from the VISTA Variables in the Via Lactea (VVV) survey that is systematically studying the central parts of the Milky Way in infrared light. The VVV team is led by Dante

Minniti (Pontificia Universidad Católica de Chile) and Philip Lucas (Centre for Astrophysics Research, University of Hertfordshire, UK).

As well as globular clusters, VISTA is finding many open, or galactic clusters, which generally contain fewer, younger, stars than globular clusters and are far more common. Another newly announced cluster, VVV CL003, seems to be an open cluster that lies in the direction of the heart of the Milky Way, but much further away, about 15 000 light-years beyond the centre. This is the first such cluster to be discovered on the far side of the Milky Way.



This image from VISTA is a tiny part of the VISTA Variables in the Via Lactea (VVV) survey that is systematically studying the central parts of the Milky Way in infrared light. At the centre of the picture lies the open star cluster VVV CL003. This newly discovered cluster, which appears as just an inconspicuous concentration of faint stars at the centre of the picture, is the first ever found on the other side of the centre of the Milky Way from the Earth. Credit: ESO/D. Minniti/VVV Team

Given the faintness of the newly found clusters, it is no wonder that they have remained hidden for so long; up until a few years ago, UKS 1 (seen in image a), which easily outshines the newcomers, was actually the dimmest known globular cluster in the Milky Way. Because of the absorption and reddening of starlight by interstellar dust, these objects can only be seen in infrared light and VISTA, the world's largest survey [telescope](#), is ideally suited to searching for new clusters hidden behind dust in the central parts of the [Milky Way](#).

One intriguing possibility is that VVV CL001 is gravitationally bound to UKS 1 — making these two stellar groups the Milky Way's first binary globular cluster pair. But this could just be a line-of-sight effect with the clusters actually separated by a vast distance.

These VISTA pictures were created from images taken through near-infrared filters J (shown in blue), H (shown in green), and Ks (shown in red). The size of the images show only a small fraction of the full VISTA field of view.

Provided by ESO

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