**ARIES scientists participated in a study that identified places to look for extraterrestrial intelligence**

A total of hundred missing stars like objects have been chanced upon by comparing old and new observations of about 600 million heavenly objects recorded in US Naval Observatory (USNO) by a team of 22 scientists from 11 countries.

Their research points out those parts of space where multiple stars seem to disappear could be the best places to look for extraterrestrial intelligence (ETI). Unless a star directly collapses into a black hole, there is no known physical process by which it could physically vanish, the study, explained. While they have seen no signs of aliens just yet, the 100 missing stars might be proof of super-advanced alien civilisation.

Scientists from Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital, an autonomous institution of the Department of Science and Technology (DST) have participated in this study which was published in January 2020 edition of Astronomical Journal.

The study titled Vanishing & Appearing Sources during a Century of Observations (VASCO), an international project, is led by Dr Beatriz Villarroel of Stockholm University and Spain's Instituto de Astrofísica de Canarias consists of scientists from Sweden, Spain, Finland, USA, The Netherlands, Belgium, Switzerland, India, Cremia, Ukraine, and the UK, including Dr Alok C. Gupta, Scientist from ARIES.
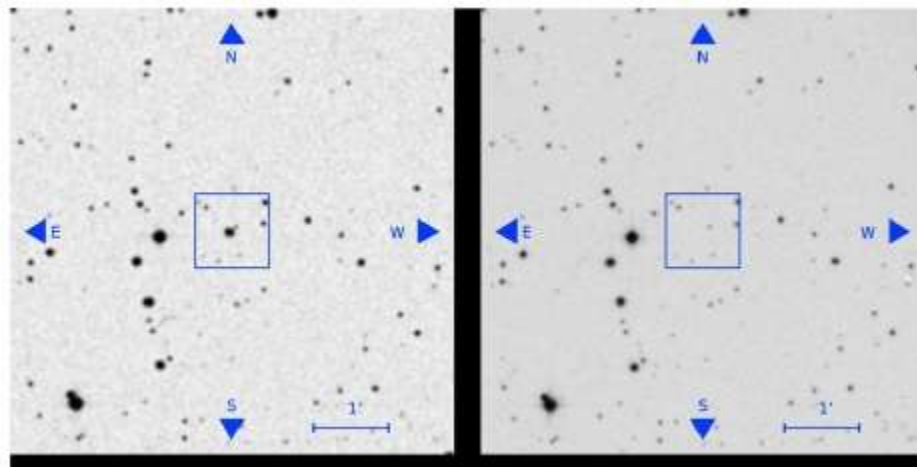
The team of scientists have compared old and new observations of about 600 million heavenly objects recorded in USNO (US Naval Observatory) catalogue containing one billion astronomical objects with Pan-STARRS (Panoramic Survey Telescope and Rapid Response System) catalogue having about 2 - 3 billion objects. This is presently the largest digital sky survey located at Haleakala Observatory, Hawaii, USA, consisting of astronomical cameras, telescopes and a computing facility that surveys the sky for moving or variable objects

For data analysis purpose, they used very modern and sophisticated 3 TB (terabyte) cloud environment provided by the Uppsala Multidisciplinary Center for Advanced Computational Science (UPPMAX), which is part of the Swedish National Infrastructure for Computing (SNIC). The cross-matching is done in the environment of SQlite3 and carried out by parallelising the cross-matching process by breaking down the USNO and Pan-STARRS databases into many smaller ones with the help of smart index methods. This enables the cross-matching process to be done effectively in smaller subsets than if using the whole databases.

Due to a relatively shorter lifespan of human beings, stars might appear eternally hanging in the night sky. But scientists are now finding out that isn't the case as stars have been inexplicably vanishing from the sky in just a matter of decades. The discovery was first made by a team of researchers in Sweden back in 2016, led by the same leading Scientist Dr Beatriz Villarroel.

One of the stars found in the USNO made in the 1950s can no longer be seen in the skies today, even with the most sophisticated detection equipment available. It motivated the team for an extensive search for such vanishing stars using larger data archive and with this idea, the VASCO project conceived.

Searching for extraterrestrial life and intelligence has been a fascinating subject since last more than two decades. From the Vanishing & Appearing Sources during a Century of Observations (VASCO) project, the team does not claim that they have already found signs of aliens during its studies. However, they propose that the best places to look for extraterrestrial intelligence are those areas near the stars that have vanished. The implications of finding such objects extend from traditional astrophysics fields to the more exotic searches for evidence of technologically advanced civilisations.