



Over 6,500 asteroids detected under the J-VAR project

The first catalogue of Solar System minor bodies produced within a project developed at the Javalambre Astrophysical Observatory (OAJ) is now available. It includes more than 130,000 individual detections, and 95% of the objects belong to the main asteroid belt. The aim of this work is to provide the scientific community with a dataset that will enable further studies on, for example, the surface composition of these objects or their rotation periods.

22 December 2025. Attention turns to the Local Universe, to the same sky mapped by J-PLUS, but this time to search for objects whose brightness or position changes. The Javalambre Variability Survey (J-VAR) examines the sky visible from the Javalambre Astrophysical Observatory (OAJ) using the JAST80 telescope, the first large telescope incorporated into this Spanish ICTS. For the first time, J-VAR has taken stock: a total of 6,579 Solar System minor bodies are now included in a catalogue that is already available to the scientific community on the CEFCA website.

(<https://archive.cefca.es/catalogues/>)

J-VAR observes regions of the sky already characterised by J-PLUS and revisits them up to 11 times, with a cadence that can range from a few days to a year. Among the more than 6,500 objects observed, 17 Near-Earth Asteroids (NEAs) have been detected, for instance. The results demonstrate the project's capability to detect minor bodies. The catalogue is presented in a paper led by David Morate González, a postdoctoral researcher at CEFCA.

It is worth noting that J-VAR is a photometric survey carried out at the Javalambre Astrophysical Observatory, in Teruel (Spain). Observations are performed with the T80Cam camera on the JAST80, using a subset of seven of the 12 filters from the main project, J-PLUS. In this first data release, the project has compiled data from more than 30,000 images across 101 sky fields. J-VAR observations began in May 2017. Ninety-five per cent of the detected minor bodies belong to the main asteroid belt.

The work includes not only catalogues of individual detections and combined magnitudes, but also preliminary analyses of the spectrophotometric properties of asteroids, comparisons with data from other missions—such as Gaia—and the construction of partial lightcurves to investigate rotational variations.

This catalogue demonstrates J-VAR's potential as a tool for studying minor bodies, as it combines multi-epoch observations with multi-filter photometry. Planned next

steps include developing more detailed taxonomic classifications, exploring objects with unusual spectral characteristics, and using the data to help correct asteroid spectra from other missions.

For postdoctoral researcher David Morate, “the work confirms that, although J-VAR’s main objective focuses on other areas of astronomy, it is a valuable tool for the characterisation and discovery of small Solar System bodies.”

Contact and further information:

David Morate, postdoctoral researcher, +34 978 221 266, dmorate@cefca.es

Link

The paper has been published in *Monthly Notices of the Royal Astronomical Society* and can be read in open access [here](#).

Notes for editors

About CEFCA and OAJ

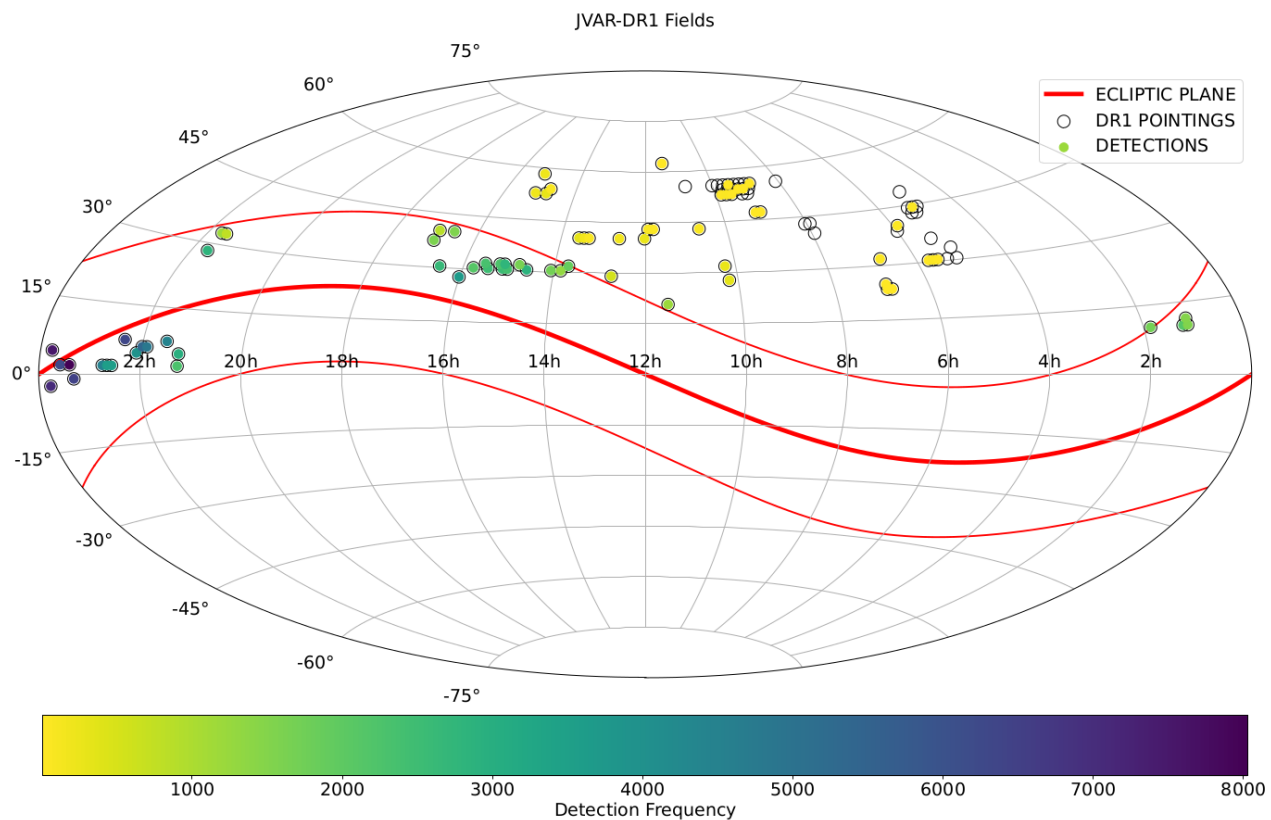
The **Centro de Estudios de Física del Cosmos de Aragón (CEFCA)** is a research institute of the Government of Aragón, founded in 2008 and based in Teruel (Spain). CEFCA’s activities include the development, operation and scientific exploitation of the Spanish **Singular Scientific and Technical Infrastructure (ICTS) Javalambre Astrophysical Observatory (OAJ)**, which is equipped with two telescopes specifically designed to carry out unique, world-leading large-scale sky surveys. CEFCA is mainly funded by the Government of Aragón and the Spanish Ministry of Science, Innovation and Universities, and it is an Associated Unit of the Spanish National Research Council (CSIC) through the Institute of Astrophysics of Andalusia.

[CEFCA website](#)

About ICTS

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ICTS are unique or exceptional in their type, and their importance and strategic nature justify their availability to the entire R&D&i community. ICTS share three fundamental characteristics: they are publicly owned infrastructures, they are singular, and they are open to competitive access.



Descripción:

Imagen de la bóveda celeste con la representación de las zonas de detección de cuerpos menores y la densidad. Cada círculo corresponde con un campo observado y los colores indican la cantidad de cuerpos menores detectados.

Crédito: D. Morate /CEFCA