# UAP PHOTO / VIDEO AUTHENTICATION AND ANALYSIS

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What can be done with an alleged UAP photo/video?

1. Assess the **authenticity** of the document (evidence of a fake)
2. Identify a **spurious effect** (no phenomenon outside the camera)
3. Perform measurements in order to **identify a known phenomenon**
4. Perform measurements in order to **characterize an unidentified phenomenon**

The IPACO dedicated software, derived from an established image intelligence operational tool, has been developed for five years in cooperation with Airbus/DS and CNES/GEIPAN to fulfill these tasks.

**Authentication**

An analog silver photo/movie is authentic if it is an original film. A digital photo/video is authentic if it is a straight copy (under Windows, Mac OS…) of the file generated by the camera with no image processing software involved *(This technical definition differs from the usual "ufological" meaning)*.

Authentication involves several sets of metadata, which are integrated during the file creation by the camera and possibly modified by software. Some of these metadata (EXIF, IPTC, XMP) explicitly indicate an image modification (name of the software used, modification date…), while other concealed parameters prove the use of a software, even when metadata have been falsified.

A fast and efficient tool, recently implemented in IPACO, indicates whether a digital image is authentic or not and, if it is not, provides the analyst with all suspect parameters.

Another efficient forensic approach consists of comparing a photo/video's characteristics (size, compression signature…) with the actual capabilities of the camera from which it was taken. In this respect, a specific IPACO-related database is under development.

**Measurements**

The main problem, with an unknown "object" appearing on a photo/video, is to determine whether it was big and far or small and near. Making use of associated metadata and/or manufacture characteristics allows measurement of angular dimensions/velocity/acceleration, giving access to useful ratios: dimension/distance, velocity/distance and acceleration/distance. In order to measure dimensions, velocity and acceleration, distance assessment is necessary.

Among other approaches (comparison with elements of the scene, depth of field…), a range of possible distances may sometimes be assessed using the effects of atmospheric propagation on apparent luminance and/or sharpness of objects. IPACO's original interactive tools enable the analyst to perform easy radiometric measurements as well as to assess sharpness of contours.

**Specific UAP analysis tools**

- Quick interactive detection of lens flares
- Detection of a suspending thread. This tool, based on an original algorithm, recently brought a final explanation for the famous *McMinnville* pictures, indicating the thread's actual position
- Quick recognition of a Chinese lantern, based on an empirical spectral characterization through the light source's mean chromaticity