

**PDC2023**  
**Vienna, Austria**

**X Ongoing and Upcoming Mission Highlights**  
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**The Decision to Act: Political, Legal, Social, and Economic Aspects**

**FITS IMAGE ARCHIVE AT ESA'S NEO COORDINATION CENTRE**

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**ABSTRACT**


To assess the threat level of a Near-Earth Asteroid (NEA) the discovery alone is not enough. It is crucial to compute reliable orbits based on accurate astrometric positions that would cover an arc as long as possible. We can accomplish this by performing follow-up observations or mining astronomical archives for information preceding the discovery itself. To fulfil those goals, ESA's NEO Coordination Centre (NEOCC) hosts the FITS Image archive which is a searchable catalogue of astronomical images dedicated to small bodies observation campaigns provided by ESA's telescopes (or telescopes under agreement with the Agency).

The NEOCC maintains an asteroid image database since 2019 with data from 2010 till current date. Presently, there are up to 680 thousand images in the database of FITS files. The archive includes images from telescopes such as: ESA's Optical Ground Station (J04), La Sagra Sky Survey (J75), Klet Observatory (246), Karl

Schwarzschild Observatory (033), Calar Alto-Schmidt (Z84), Cebreros TBT Observatory (Z58), and soon from other observatories cooperating with ESA.

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J04\_01\_20201213003259.fits



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Observatory Name	ESA Optical Ground Station, Tenerife	
Observatory Code	J04	
Longitude	343.488	deg
Distance from Rotation Axis	5615.801	km
Distance Equator	3003.678	km
Telescope	OGS	
Instrument	ESASDC2	
Image Type	Light Frame	
Right Ascension	73.8111	deg
Declination	21.1661	deg
Rotation	0.0	deg
Observation Start (UTC)	2020-12-13T 00:32:59	YYYY-MM-DDT hh:mm:ss
Exposure Time	30.0002	s
Pixelsize x	1.229	arcsec/pixel
Pixelsize y	1.229	arcsec/pixel

All of the available images in the archive have already been analysed to discover or follow-up already known asteroids, and the corresponding astrometric measurements have been submitted to the Minor Planet Center. Moreover, the NEOCC image database is linked into the Solar System Object Image Search (SSOIS) system developed by the Canadian Astronomy Data Centre (CADC; Gwyn, Hill, Kavelaars, 2012). Therefore, the database is extremely useful in order to allow further inspections of the images and to possibly find unidentified detections of NEOs or other moving objects.

**References:**

Gwyn, S.D., Hill, N. and Kavelaars, J.J. (2012): SSOS: a moving-object image search tool for asteroid precovery. Publications of the Astronomical Society of the Pacific, 124, 579.

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**Comments:**

*(Alternative session, Time slot, Oral or Poster, Etc...)*