

Gaia-FUN-SSO circular #15

Dear Colleagues,

Gaia-FUN-SSO is back...!

After a long period of silence and a hard work by all the team, we are happy to announce that the Gaia alert system for SSO is validated : alerts are produced on a daily basis, and available online at <http://gaiafunssso.imcce.fr/>

The main problems that we had to overcome concerned discrimination between many stellar/spurious sources and moving objects (i.e. SSO/Solar System Objects). This has been now solved thanks to a drastic filtering. Despite this aggressive filtering strategy, all alerts have to be validated and verified by ground-based observations. Contaminants or missed identifications of known asteroids could still be present and generate false-positive alerts, although hopefully in a very minor fraction.

Gaia SSO alerts

Note that the primary goal is to validate the discovery of a new asteroid by Gaia, thanks to ground-based confirmation and follow up. For the dissemination of these alerts, we have developed a tool, the Gaia FUN SSO pipeline, accessible at the address <https://gaiafunssso.imcce.fr> This is the unique access point to get the Gaia SSO alerts. More than 70 persons have already registered.

Only registered users can obtain the full predictions tailored for their site and instruments (including topocentric ephemerides and sky maps). If you have not registered, please do, and enter your telescope data and site coordinates.

Check the web site regularly when you have telescope time available, as the alert list can evolve anytime, depending upon the arrival time of input data. In general, a typical 1-m telescope should always have a few alerts to choose from, with 1 or 2 possible candidates per night. We have been able to validate the first Gaia alerts in October, during the test phase.

Report policy

In case you successfully observe an asteroid we ask you to fill in and send us the form labelled "Observation report" that can be accessed from the object list or the "List of currently active alerts" page.

We remind that we aim at giving to follow-up participants the maximum visibility for this activity. Besides sending the report back, we recommend that you submit your astrometry to MPC by using the provisional object name g0#### that is provided on the Gaia-FUN-SSO site. A rare exception to this naming, is for asteroids that could appear as alerts on the web page, but are in fact known to MPC. If you find a clear, unambiguous match to a known asteroid, you should then use the official asteroid name in your MPC communications. However, especially in this first phase, we are very interested to receive a feedback from you, on any related aspect (alert page issues, failed attempts, doubts and comments...).

More details: astrometry, discovery opportunities, limitations.

The astrometry of candidate new asteroids obtained by Gaia are currently derived from a preliminary astrometric reduction using approximate (daily) attitude data. As such, it is not currently transmitted to MPC.

We plan to improve this aspect soon and to send Gaia astrometry to MPC directly. However, following the MPC policy the discovery will be officially attributed, for the time being, to the first observer submitting the astrometry. So, right now you have now the concrete possibility of discovering asteroids, just by following Gaia's "suggestions".

Further limitations are due to the way our filtering works, and should be kept in mind by the observers. As it is aggressive, our alert stream is not "complete", in the sense that faintest detections, corresponding to real alerts, or slowly moving objects, can be absent. Also note that the alert stream feeding the web pages can be temporarily suspended without notice for different reasons, independently from the alert processing itself (delays in the upstream data processing, technical problems...). In general, such interruptions should not be longer than a day or so.. We will keep you informed in case of longer breaks.

And now... let's go to the telescope and observe Gaia asteroid alerts!

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PS: If for any reason...you wish to unsubscribe to this network let us know!