

Gaia-FUN-SSO Circular #13

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Dear Gaia-FUN-SSO participants,

I forward you a message from M. Micheli & E. Perozzi (ESA-SSA-NEO) which recommend the observation of two newly discovered asteroids with short windows of observability (see below). At this date, on our side we are shifting from a "wiki" mode to a "pipeline" mode of distribution of data. We are not yet ready to push the data related to these asteroids in our new system. I suggest that you access to the ESA-SSA-NEO website for ephemerides.

<http://neo.ssa.esa.int/web/guest/search-for-objects?sum=1&des=2014WU200>

<http://neo.ssa.esa.int/web/guest/search-for-objects?sum=1&des=2014WX202>

But we will be able to post the possible astrometric data (MPC format) on our Gaia-FUN-SSO wiki. Therefore, if you succeed, please send me copy of these data. Thank you.

Best regards

W. Thuillot

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Message from M. Micheli, E. Perozzi and colleagues (ESA-SSA-NEO)

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Dear colleagues,

here at the ESA NEO Coordination Centre we recently noticed a couple of newly discovered asteroids, 2014 WU200 and 2014 WX202, which may significantly benefit from additional observations in the next few days.

We would therefore like to ask if any of you would be interested in collaborating with us to obtain astrometric and/or physical observations of these asteroids. The two objects will go into solar conjunction around December 11 and December 9 respectively, and the observability window is therefore quite limited.

From the point of view of physical characterization, anything ranging from lightcurves to colors and/or spectra would be extremely valuable, since almost nothing exists in the literature for objects of this size range. Given the reasonably faint magnitude of both objects ( $V=19$  at peak), only moderately large telescope can probably obtain valuable physical data on these targets.

From an astrometric perspective much smaller apertures can still be very useful. The most important goal in this case would be to obtain a few detections (no more than 3-4 per observatory) on any of the upcoming nights. Since the accuracy of the astrometric reduction is essential in this case, we would be happy to support you in the measurement process, to ensure the highest quality positions are reported to the MPC (we would obviously properly credit you for any information we would extract from your data). In this case please let me know, and we can make the necessary agreements.

More information on the targets, and why they are interesting, is given below. Please let us know if you have any question, or need any help to prepare or optimize the observations. We will be happy to provide you with observatory-specific ephemerides, or any other information you may need to achieve the best results.

Thank you in advance for anything you can do.

Marco Micheli on behalf of the ESA NEO Coordination Centre

Why are they interesting?

Both objects are in the  $H=29$  size range, corresponding to diameters of a few meters, and will have a close approach with our planet next week. Despite the very small size, they are both particularly interesting for a variety of reasons, such as:

- They are both "virtual impactors", meaning they have non-zero impact probability in the next century. Although an impact from an object of this size will have negligible consequences on Earth, it is nevertheless interesting to test our impact monitoring tools on such objects.
- Both asteroids have peculiar Earth-like orbits, making them easily accessible by spacecraft from Earth (low  $\Delta v$ ).
- The small size, together with their accessibility, puts them in the right size regime for retrieval missions such as the one currently under study at NASA (ARRM).
- The size regime of these targets is also particularly interesting because it directly represents the most common Earth impactors.

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