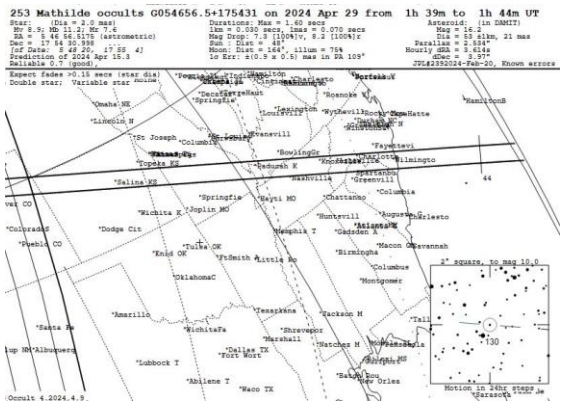
Waltzing (253) Mathilde with Apr. 28th pm EI Tau occ'n in Carolinas – Need observers

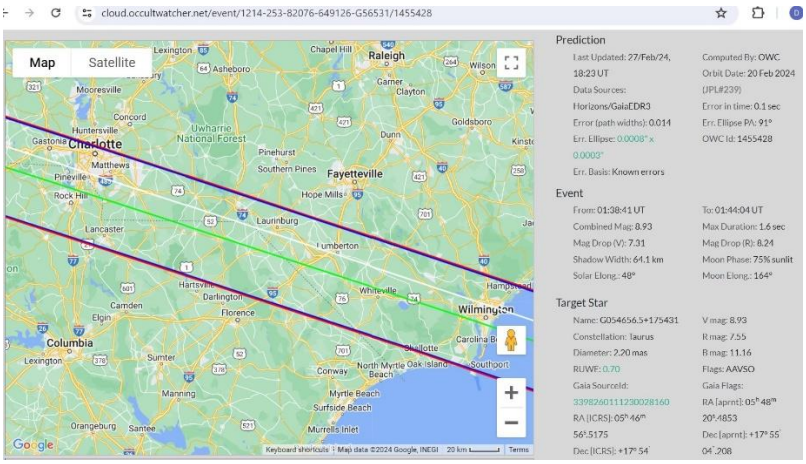


Left: Mathilde imaged by NEAR in 1997; Credit: NASA, JHU-Applied Physics Lab.

Right: Occult map for the 2024 April 28/29 occultation

Half of the C-type outer-belt asteroid (253) Mathilde (the sunlit side) was well-imaged by the NEAR spacecraft in 1997, but occultation observations are needed to get some points on the 1997-shadowed side, to better characterize the apparently large rubble-pile object with huge craters. The NEAR project concluded in 2001; the project in those days didn't realize the value of occultations, and good-enough predictions were not available then, like they are now. Although no official occultation funding is available for studying Mathilde, I did much of the orbit and maneuver design work for NEAR, including for the Mathilde flyby, so we want to provide cameras and other equipment for accurate timing to observers who are already in, or who can travel to, the eastern part of the predicted path that has sufficient dark time before the event; see the more-detailed map below. We can reimburse some travel expenses for students and amateurs who can make well-timed observations of the occultation. Schedule prevents us from trying the event ourselves, but we have some equipment at our home in Greenbelt, Maryland that could be loaned to those who might try the occultation. Since the event is so short, we prefer recordings with 0.1s exposures or faster; those should be possible with 8-in. or larger scopes, but even 5-in. scopes (like "maxi" systems) can record faster with sensitive video cameras like the IOTA Runcams (we have a few we can loan).

The OW cloud link is https://cloud.occultwatcher.net/event/1214-253-82076-649126-G56531# with the Google map and details page at https://cloud.occultwatcher.net/event/1214-253-82076-649126-G56531/1455428 . The target star is EI Tauri, a Mira variable also known as G054656.5+175431. The star must have been near max. as Gaia gives the star's mag. as 8.9, but other catalogs have it fainter. The star is not in the UCAC4 catalog, but it is in UCAC3, so it's shown correctly with Guide9 (but not by Guide8 which uses an inaccurate old position for the star). EI Tauri is expected to be near max in mid-May; to be sure of what we might expect, we imaged the star on April 16th, finding it to be about mag. 10.1; some of our images and finder charts for the star are near the top of our Web page at **https://occultations.org/publications/rasc/2024/nam24MBspecialoccs.htm** . The star should get a little brighter by Apr. 28 (early Apr. 29 UT).



Please contact me if you can help with observing this valuable event.

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