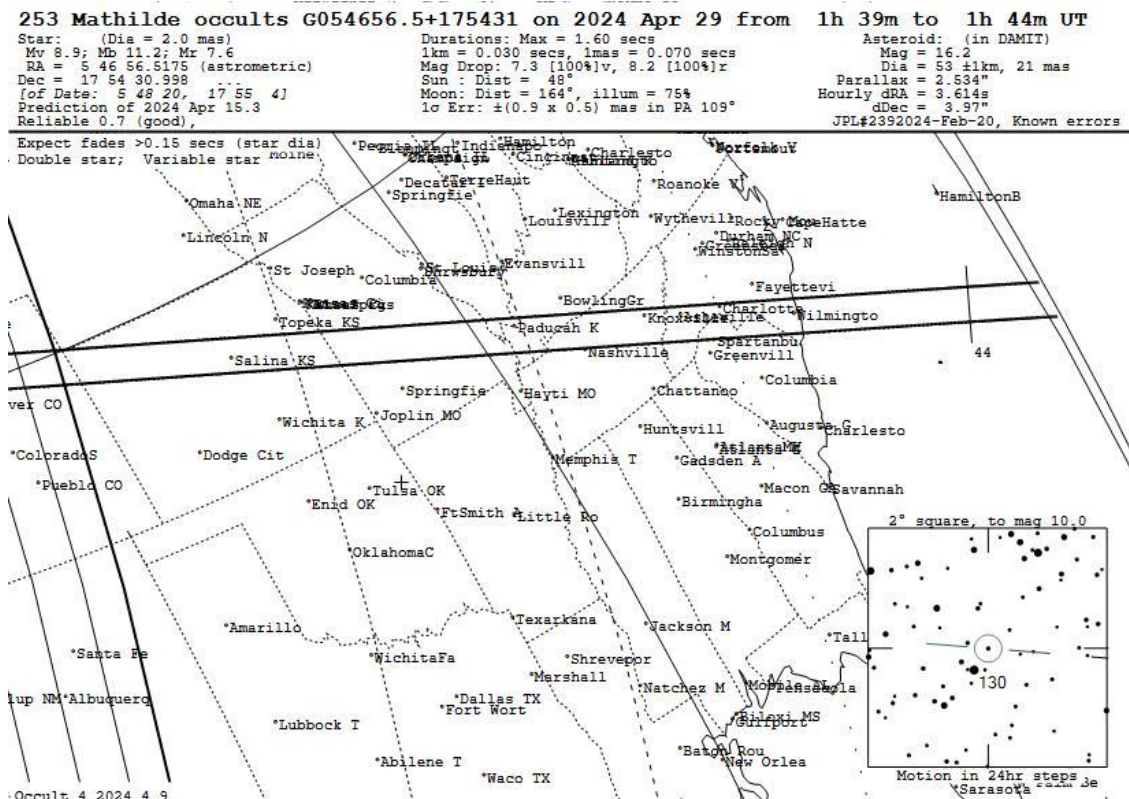


Waltzing (253) Mathilde with Apr. 28th pm El Tau occ'n in Carolinas – Need observers

Half of (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 I am willing to pay reasonable travel expenses for those who can make well-timed observations of the occultation, for those within 300 miles of the path and east of the Mississippi River (air travel not supported; Sun alt. is -12 deg. at event time there), for up to 6 stations. Schedule prevents me from trying the event myself, but I have some equipment at our home in Greenbelt, Maryland that could be loaned to those who might try the occultation; more below on this. 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). I will decide whether my funded effort is “Go” or “No-go”, based on the cloud cover forecasts 3 days before the event (late the night of Apr. 25-26).



As you can see from the Occult map at the bottom of the first page, (it was attached in the e-mail message), there will not be a lot of dark time to get on target, with the most time available for those in the path in the Carolinas; a map from OW cloud, given in a separate link but attached to the e-mail, shows that part of the path in more detail. 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 El 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). El Tauri is expected to be near max in mid-May; to be sure of what we might expect, we imaged the star last night, 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 of 2024 North American special main-belt asteroids at <https://occultations.org/publications/rasc/2024/nam24MBspecialoccs.htm> . The star should get a little brighter by Apr. 28 (early Apr. 29 UT).

See the heading of the Occult map for general event information, such as the expected central duration (1.6s), but note, since this is a variable star, it will not be mag. 8.9, but about 10.1, according to our recent observations. U.T. and circumstances are given for some major areas where the event might be observed:

The UT date is 2024 April 29;
the local (EDT) date is Apr. 28 and hour 9 pm (8 pm CDT for much of TN)

Knoxville, TN	-84.0, +35.9	UT 1:43:45	Star 24 in W, Sun -16
Asheville, NC	-82.6, +35.4	UT 1:43:47	Star 23 in W, Sun -17
Clover, SC	-81.2, +35.1	UT 1:43:48	Star 22 in W, Sun -18 w. of Charlotte, NC
Rowland, NC US301	-79.3, +34.5	UT 1:43:50	Star 20 in W, Sun -20 n. of S.of Border, SC (I95)
Leeland, NC I140	-78.1, +34.2	UT 1:43:52	Star 19 in W, Sun -21 w. of Wilmington, NC

We will want to coordinate observing locations and need to know if anyone trying the event wants to do so from an observatory or other fixed site. If you might be interested in observing the event, especially if you might be interested in taking up our offer to pay your travel expenses for the event (with restrictions noted above), please contact:

David Dunham
7913 Kara Ct
Greenbelt, MD 20770
Mobile phone: 301-526-5590