

# 2010 TJEE (Torus of Io Jovian Extinction Events)

[http://scottsmightymini.com/JEE/2010\\_TJEE.htm](http://scottsmightymini.com/JEE/2010_TJEE.htm)

Predictions of Torus JEE by Scott Degenhardt ([scotty@scottsmightymini.com](mailto:scotty@scottsmightymini.com)) using [Starry Night](#)

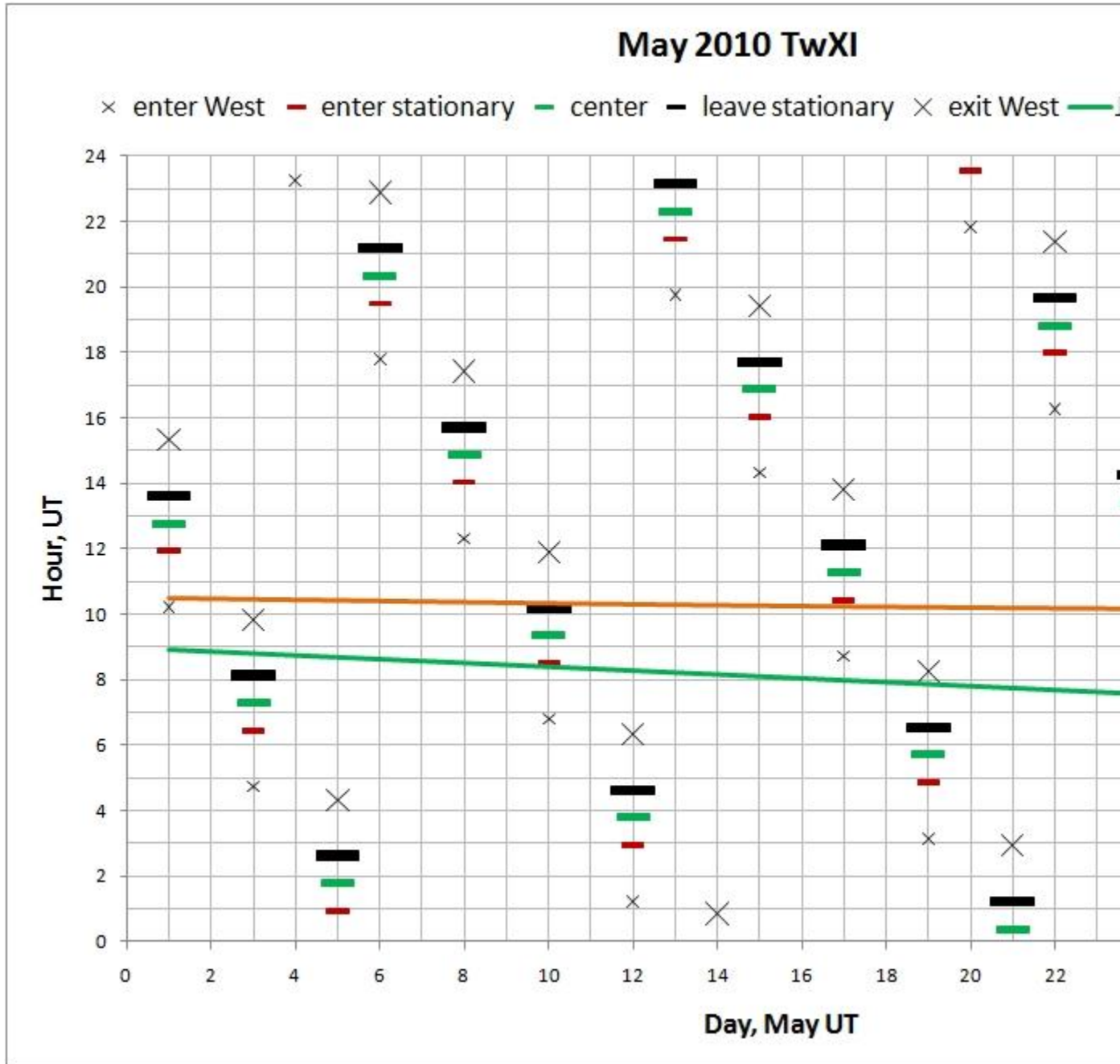
## How to interpret TJEE predictions:



The plotted markers convey the expected intensity trend in the lightcurve based on modeling of anomalous trends found in the [IAEP study](#). It is predicted that Io's intensity will suffer extinction as it passes through the tip of its Torus due to a line of sight alignment of the Torus material that increases the column thickness of this extinctive material. Here are some key things to remember when interpreting predictions:

1. All times are in UT.
2. "X" marks the spot in the predictions. I.e. the X marks the time when Io passes a predicted intensity transition zone changing between nominal intensity and gradual extinction. When planning an observing run, if at all possible center your wing data on an X.
3. When Io enters the Torus tip at eastern elongation Io is on the back side of the column of Torus material, thus transitioning from nominal to near maximum extinction.
4. When Io enters the western tip Io is in front of the column of material, thus going from nominal intensity and gradually suffering extinction until it exits the Torus tip. As Io exits the western tip Io transitions from near maximum extinction to nominal.
5. The size of the X is therefore designed to represent the zone where the greatest intensity gradient in #3 and #4 are expected. Therefore the intensity trend is gradually dimming from nominal intensity starting at the small X to the large X. The small X represents when Io enters or exits the front side of a tip region. The large X represents when Io enters or exits the rear of a tip region.
6. Maximum extinction is expected to occur somewhere between the large black bar and the large X.
7. The bars represent the time period where Io appears stationary in its orbit around Jupiter due to its trajectory being straight towards or away from earth. The red small bar represents when Io becomes stationary after entering the tip area, the green medium bar represents when Io is centered at greatest elongation and perfectly stationary, and the large black bar represents when Io leaves its stationary status.

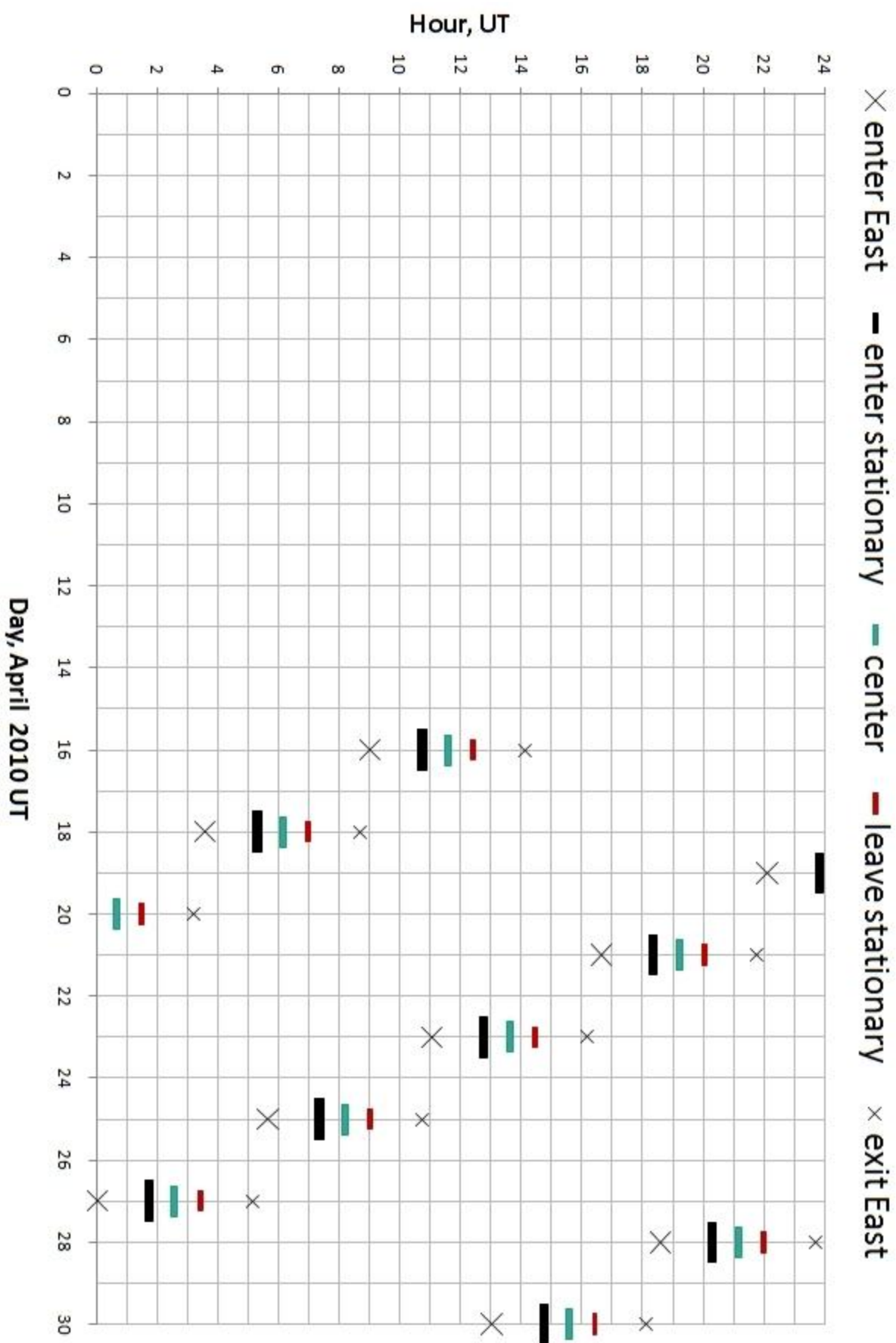
8. Visibility of any given event can be easily determined if you plot a line representing when Jupiter becomes visible for your observing system and another line representing the onset of Civil twilight. In this sample chart I plotted Jupiter rise times as a green line and Civil twilight as an orange line:



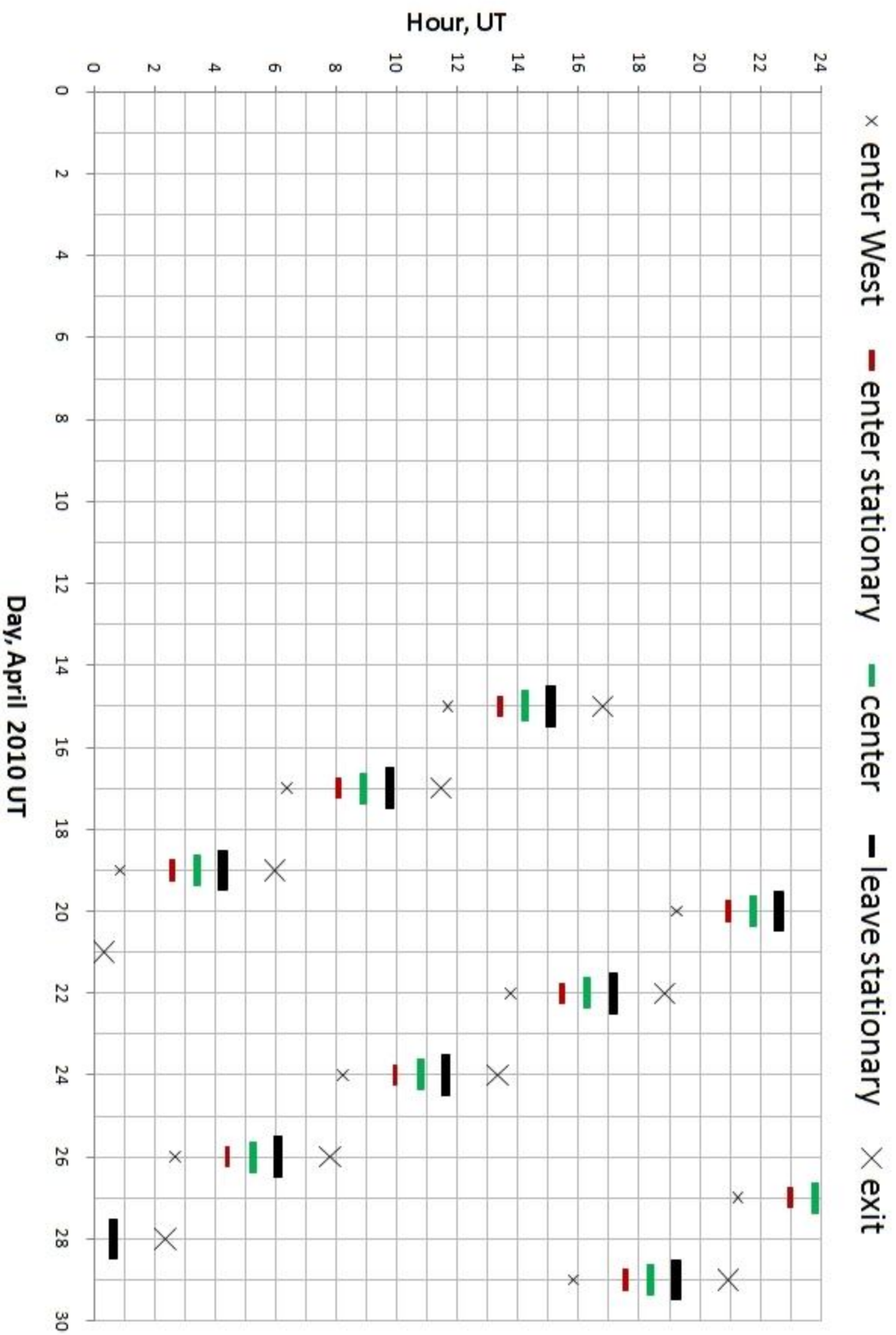
[Click here](#) to download a PDF of predictions for printing

**2010 predictions of extinction of  $l_0$  by the Torus of  $l_0$ :**

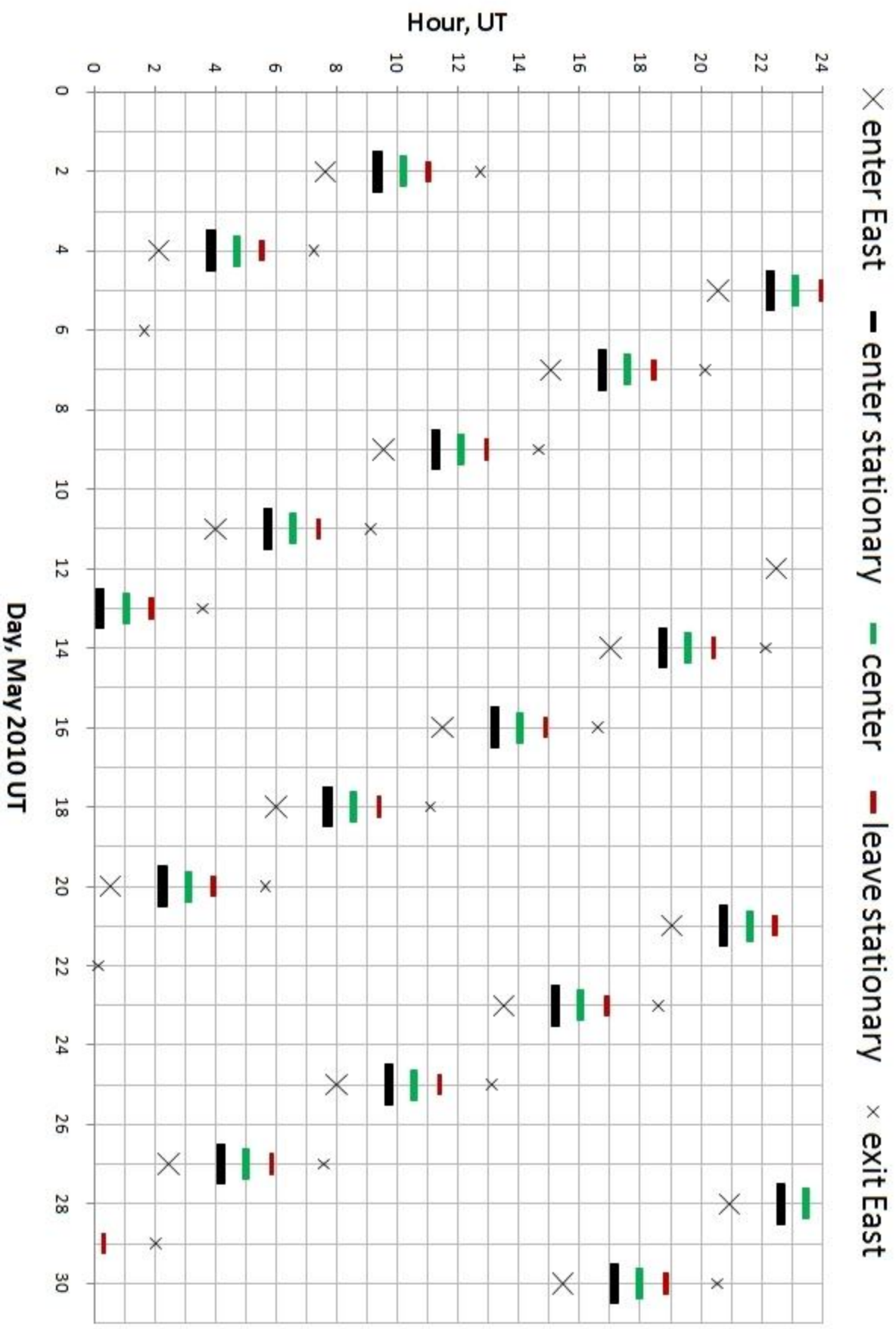
# April 2010 TeXI



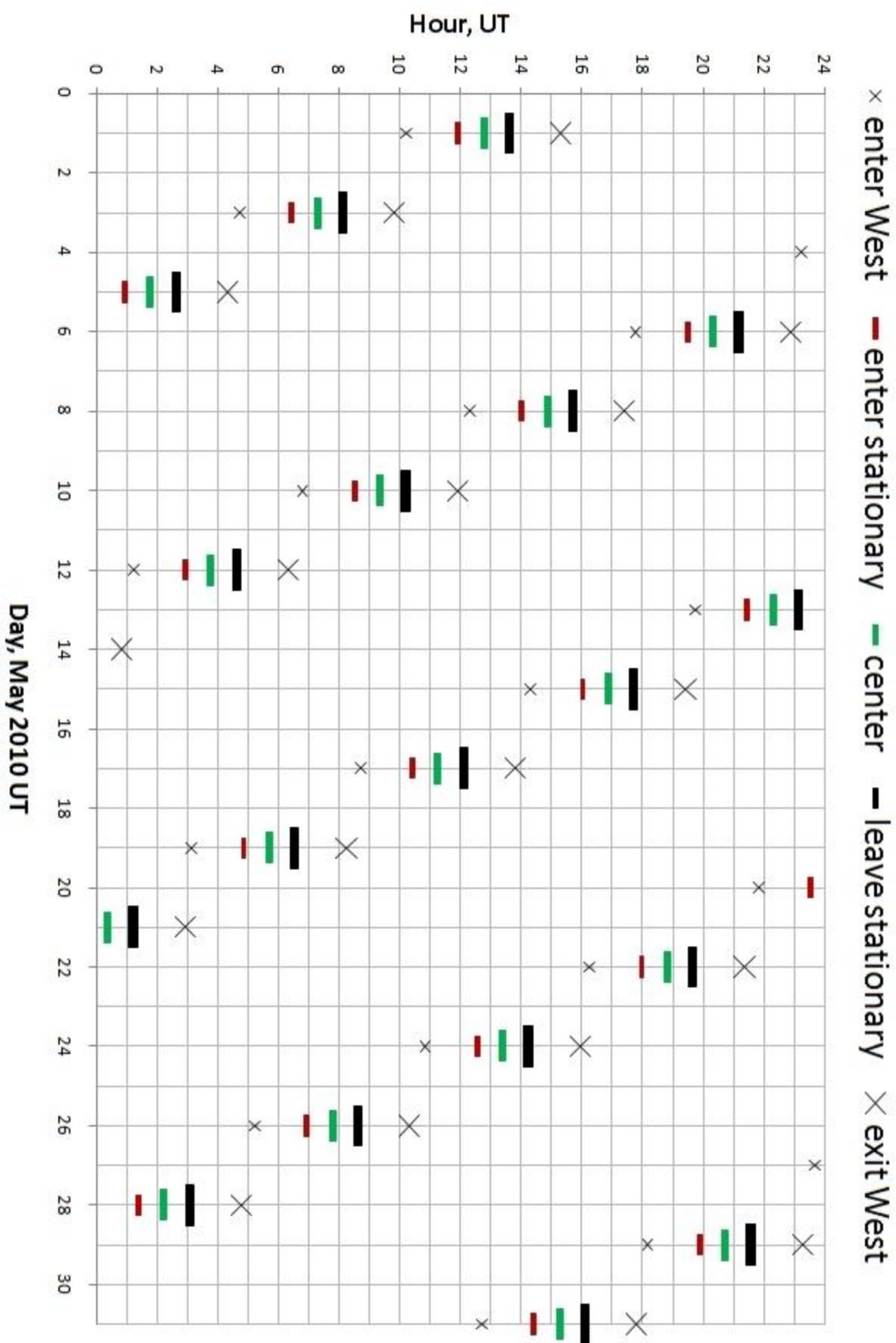
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