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SUPPLEMENTARY MATERIAL

Serendipitous observation of a coronal mass ejection during the total solar eclipse of 14 December 2020
Supplementary material

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Movement of the corona

The animated GIF file shows the two images used to produce Fig. 5 (of the main manuscript). A large mask was used to cover the Moon, which moves significantly between the shots.

Camera control script

File LUA is the Lua script used to automatically take the photographs during the eclipse. It runs in-camera, making use of the Lua implementation of MagicLantern for Canon cameras, which is currently in the experimental builds: `https://builds.magiclantern.fm/experiments.html`. The script is based on the original one by Brian Greenberg. Besides recentering of the Sun (if needed), it runs unsupervised. If interrupted, it can be run at any moment and will take over from the current events based on the camera clock.

Figure 1: Least squares fit of a circle to 50 points set over the lunar limb. The brightest parts were avoided for improved accuracy. The size of this circle was used to set the scale of the photographs.

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Figure 2: A quick check in the field after the eclipse showed an unusual feature in the corona, which turned out to be the unexpected CME.

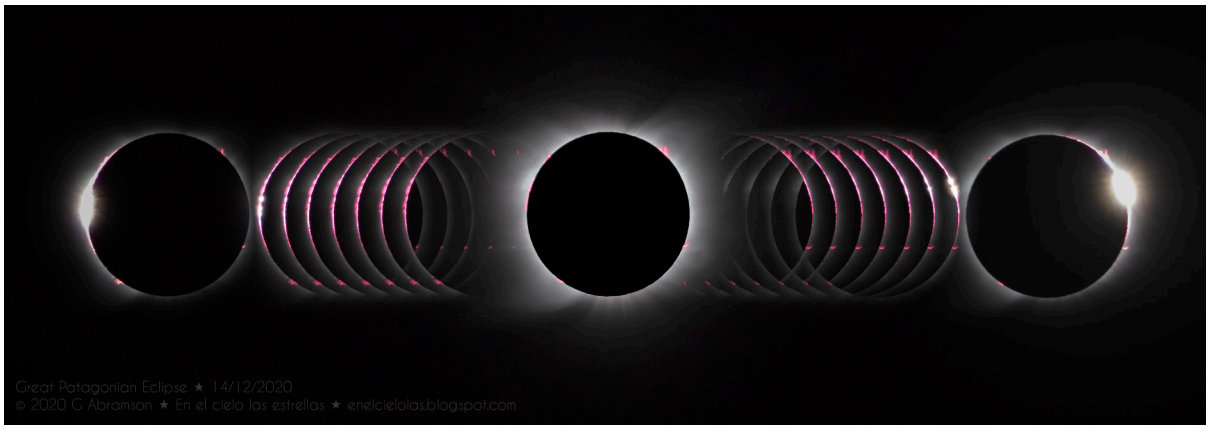

Figure 3: The chromosphere was captured by two sets of fast shots at second and third contacts.

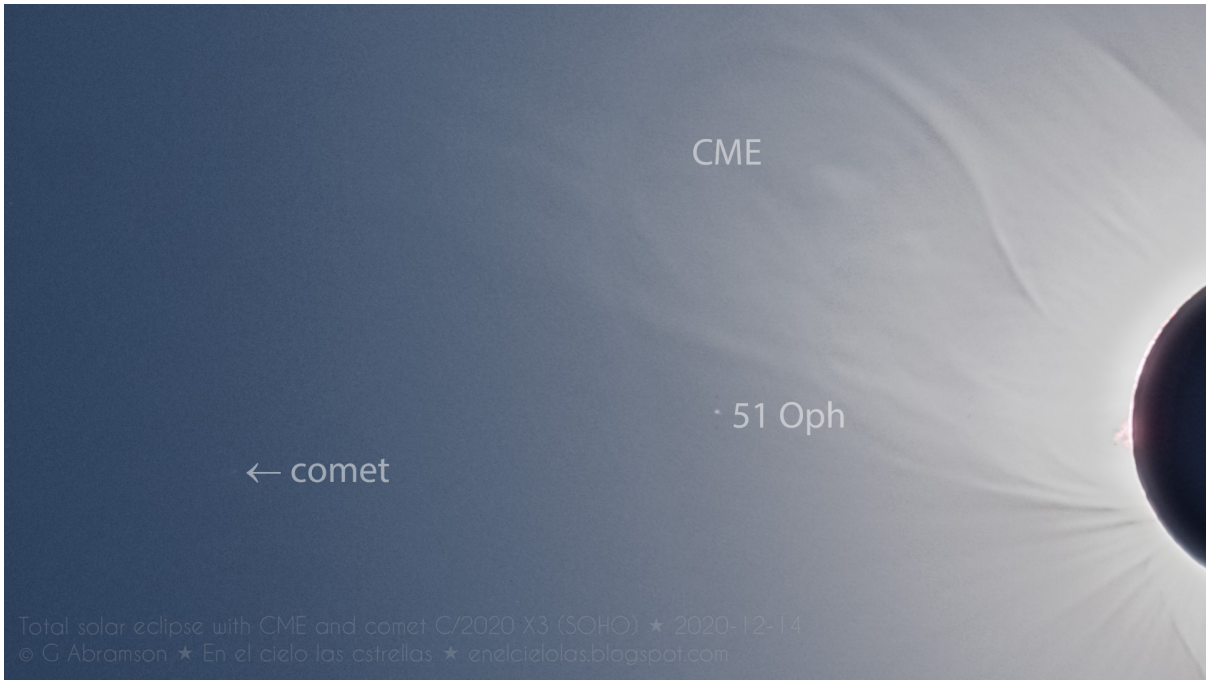

Figure 4: Sungrazer comet C/2020 X3, discovered the previous day in SoHO images by Worachate Boonplod, was captured approaching the Sun. SoHO images show that the small comet did not survive perihelion.

Figure 5: Photographic rig used during the eclipse. Canon T3i camera, Tamron 18-270 mm zoom lens, iOptron SkyTracker camera mount, equatorial mount and tripod (EQ-1 type), 12 V gel battery.